

SELF-STUDY REPORT

Submitted to

**National Assessment and
Accreditation Council (NAAC)
2017**

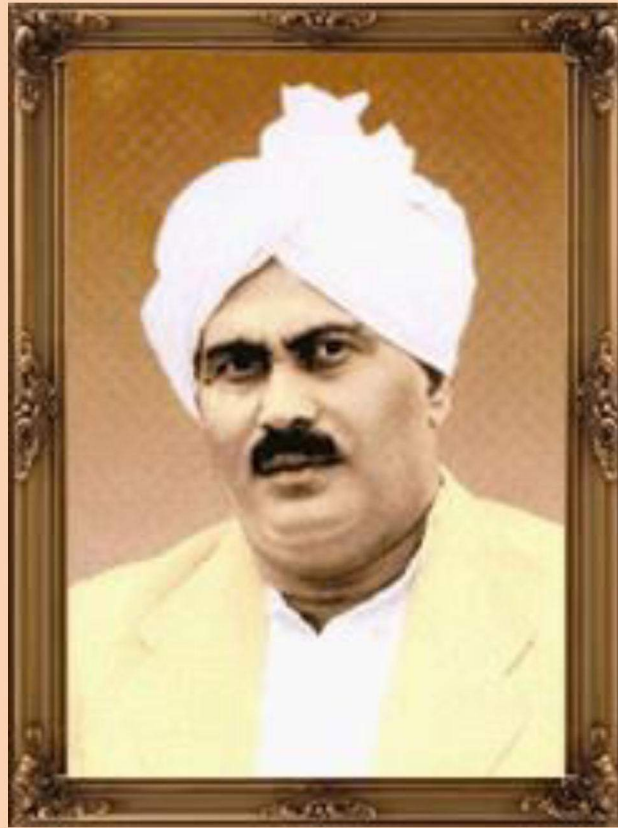


T K M COLLEGE OF ENGINEERING

TKM College P. O., KOLLAM 691 005, KERALA

+91 474 2712022, 2712024

www.tkmce.ac.in | principal@tkmce.ac.in



Janab Thangal Kunju Musaliar

(1897-1966)

Our Founder



Janab Shahal Hassan Musaliar

President, TKM College Trust



Dr. S. Ayoob

Principal



TKM COLLEGE OF ENGINEERING

Vision

Excellence in education and research with
socio-economic and environmental outlook

Mission

To offer state-of-the-art Undergraduate, Postgraduate
and Doctoral programmes.

To enhance knowledge by engaging in cutting edge
research and by undertaking collaborative projects
with industry

To instill ethical, social and environmental perspectives in
designing systems for sustainable development

To nurture creativity, self learning and interpersonal skills

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PREFACE

TKM College of Engineering, the first Government-aided engineering college in Kerala, is situated in the cashew hub of Kerala, the city of Kollam. The college was established by Janab Thangal Kunju Musaliar, a magnanimous name that rings loud in the educational, economic and socio-cultural development of the city of Kollam. An ace entrepreneur and a great visionary, he set his own life as an example of sheer determination, hard work, courage and leadership. In 1950, while at the peak of his business career, Janab Musaliar foresaw the tremendous importance of education in the years to come. This thought paved way for the formation of TKM Educational Trust in 1956. The trust has the heritage of holding up firmly the values of the late Musaliar. The college is the first and foremost institution for technical education, run by the TKM College Trust, headed by Janab Shahal Hassan Musaliar. The trust established institutions such as TKM College of Engineering, TKM Institute of Technology, TKM College of Arts and Sciences, TKM Institute of Management, TKM School of Communication and Information Technology, TKM Centenary Public School, TKM Higher Secondary School, and recently the TKM School of Architecture.

Dr. Rajendra Prasad, the first President of Independent India, laid the foundation stone for the college in 1956. The college was formally inaugurated by Prof. Humayun Kabir, the then Minister for Scientific and Cultural Affairs, Government of India in 1958. At its start, the college began its stride with the three basic branches of engineering – Civil, Mechanical and Electrical Engineering. Today it is a renowned technical institution in India, offering courses in eight branches of engineering at under graduate level and seven courses at post-graduate level. It is also an approved research centre for Mechanical and Civil Engineering. It is supported by about 375 eminent staff members; teaching and non-teaching, and about 800 students are admitted every year in various disciplines. The college is affiliated to the University of Kerala and APJ Abdul Kalam Technological University and is approved by the All India Council for Technical Education (AICTE), New Delhi.

As envisaged by its founder, TKM College of Engineering has become an outstanding centre of excellence in Kerala, catering to the needs of higher education to all sections of society and stands as an example of a model learning centre. The main objective of TKM College of Engineering is to provide value-based education to its students and to develop the overall personality of the students by enhancing their creativity, self-confidence, communication and leadership skills. The College is very pleased to submit this Self Study Report (SSR) for National Assessment and Accreditation Council (NAAC) Assessment.

ABBREVIATIONS

ABP	Anand Basar Patrika
AICTE	All India Council for Technical Education
AO	Accounts Officer
AQAR	Annual Quality Assurance Reports
ARCH	Architecture
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
BoS	Board of Studies
CA	Continuous Assessment
CAD	Computer Aided Design
CAI	Course Assessment Index
CAP	Centralized Allotment Process
CAS	Career Advancement Scheme
CAT	Common Admission Test
CC	Class Committee
CCF	Central Computing Facility
CE	Civil Engineering
CEE	Commissioner of Entrance Examinations
CERD	Centre For Engineering Research And Development
CET	College of Engineering Trivandrum
CFD	Computational Fluid Dynamics
CGPA	Cumulative Grade Point Average
CGPU	Career Guidance and Placement Unit
CHE	Chemical Engineering
CIM	Computer Integrated Manufacturing
CO	Course Outcome
CPB	College Planning Board
CSE	Computer Science and Engineering
CSI	Computer Society of India
CSIR	Council of Scientific and Industrial Research
CUSAT	Cochin University of Science and Technology
DAC	Department Academic Committee
DELNET	Developing Library Network
DIY	Do It Yourself
DMC	Department Management Committee
DQAC	Department Quality Assurance Cell
DRDO	Defence Research and Development Organisation
DST	Department of Science and Technology
DTE	Director of Technical Education
ECE	Electronics and Communication Engineering
EEE	Electrical and Electronics Engineering
FDP	Faculty Development Programme
FET	Faculty of Engineering and Technology
FMC	Facility Management Committee

FS	Foreign Students
GA	Graduate Attribute
GATE	Graduate Aptitude Test in Engineering
GPA	Grade Point Average
HMC	Hostel Management Committee
HoD	Head of Department
ICSC	Integrated Community Service Centre
ICT	Information and Communication Technologies
IE	Institution of Engineers
IEDC	Innovation and Entrepreneurship Development Cell
IEEE	Institute of Electrical and Electronics Engineers
IEI	The Institution of Engineers India
IETE	The Institution of Electronics and Telecommunication Engineers
IIC	Industrial Instrumentation and Control
IIC	Industry Institution Interaction Cell
IISc	Indian Institute of Science
IIT	Indian Institute of Technology
IMA	Indian Medical Association
INFLIBNET	Information and Library Network
IPR	Intellectual Property Rights
IQAC	Internal Quality Assurance Cell
IQAS	Internal Quality Assurance System
IRE	Indian Rare Earths Limited
ISRO	Indian Space Research Organization
ISTE	Indian Society for Technical Education
KEAM	Kerala Engineering Agricultural, Medical Entrance Examination
KEAN	Kerala Engineering Graduates Association of Northeast America
KMML	The Kerala Minerals and Metals Limited
KSEB	Kerala State Electricity Board
KTU	APJ Abdul Kalam Technological University
LPSC	Liquid Propulsion System Centre
MCA	Master of Computer Application
MCM	Merit Cum Means
ME	Mechanical Engineering
MEA	Mechanical Engineering Association
MHRD	Ministry of Human Resource Development
MODROBS	Modernization and Removal of Obsolescence Scheme
MOOC	Massive Online Open Courseware
MoU	Memorandum of Understanding
NAAC	National Assessment and Accreditation Council
NASA	National Association for Students of Architecture
NATA	National Aptitude Test in Architecture
NBA	National Board of Accreditation

NIIST	National Institute for Interdisciplinary Science and Technology
NIT	National Institute of Technology
NITTTR	The National Institute of Technical Teachers Training and Research
NPTEL	National Programme on Technology Enhanced Learning
NSS	National Service Scheme
OCI	Overseas Citizenship of India
OER	Open Educational Resources
OLPV	One Library Per Village
OPAC	Online Public Access Catalogue
PE	Production Engineering
PEO	Programme Educational Objective
PIO	Person of Indian Origin
PO	Programme Outcome
PTA	Parent Teachers Association
QEEE	Quality Enhancement in Engineering Education
QIP	Quality Improvement Programme
RPS	Research Promotion Scheme
SAC	Student Affairs Committee
SEBC	Socially and Educationally Backward Community
SILK	Steel Industries Kerala Limited
SS	Senior Superintend
STEPS	Students of TKM for the Empowerment of People and Society
STTP	Short Term Training Programme
SWC	Students Welfare Committee
TAGA	TKMCE Alumni Global Association
TEQIP	Technical Education Quality Improvement Programme
TKM	Thangal Kunju Musaliar
TKMCE	Thangal Kunju Musaliar College of Engineering
VLSI	Very Large Scale Integration
VSSC	Vikram Sarabhai Space Centre

EXECUTIVE SUMMARY

GENESIS OF THE INSTITUTION

TKM College of Engineering, started by the TKM College Trust, was founded by Janab Thangal Kunju Musaliar, a leading industrialist, philanthropist and a great visionary. Dr. Rajendra Prasad, the first President of the Republic of India, laid the foundation stone of this first Government-Aided Engineering College in Kerala in the private sector in 1956. The College was inaugurated by Prof. Humayun Kabir, the then Union Minister for Scientific Research and Cultural Affairs, in 1958. The aims and objectives of the TKM College Trust are to establish educational institutions of excellence to serve the society in enhancing the quality of human life. The Trust has established many other institutions to impart quality education in respective areas. The excellent academic ambience and state of the art facilities in these institutions make them trend setters in the education scenario of the state of Kerala. Following Institutions are being run by the TKM College Trust:

Sl. No.	Name of the Institution	Year of Establishment	Location
1	TKM College of Engineering	1958	Karicode, Kollam
2	TKM College of Arts and Science	1967	Karicode, Kollam
3	TKM Institute of Management	1995	Karuvelil, Kollam
4	TKM School of Communications and Information Technology	1997	Karicode, Kollam
5	TKM Centenary Public School	1997	Karicode, Kollam
6	TKM Higher Secondary School	2000	Karicode, Kollam
7	TKM Institute of Technology	2001	Karuvelil, Kollam
8	TKM School of Architecture	2014	Karuvelil, Kollam

The administration of these institutions is vested with a Governing Body, consisting of representatives of the TKM College Trust, Government of Kerala, and the All India Council for Technical Education (AICTE). The TKM College Trust is being lead by Janab Shahal H Musaliar as Chairman of the Governing Body.

PROGRESSION

The college started functioning with three basic branches of engineering – Civil Engineering, Mechanical Engineering and Electrical Engineering with a total intake of 120 students. Over the years, TKM College of Engineering has emerged as a centre of excellence, offering a wide spectrum of graduate and post graduate disciplines in engineering and related areas. Currently this Institute offers 8 UG programs namely Civil Engineering, Mechanical Engineering, Production Engineering, Electrical & Electronics Engineering, Electronics & Communication Engineering, Chemical Engineering, Computer Science & Engineering and Architecture and 7 PG Programs namely Structural Engineering and Construction Management, Computer Science & Engineering, Electronics and Communication Engineering (Communication System), Industrial Refrigeration and Cryogenic

Engineering, Master of Computer Application, Computer Integrated Manufacturing and Industrial Instrumentation & Control. The college is affiliated to the University of Kerala and is approved by the AICTE. The institution now stands affiliated to APJ Abdul Kalam Technological University (KTU), the newly started University for Technical Education in the state since June, 2015. The institute is an approved Research Centre of the University of Kerala for Mechanical and Civil Engineering disciplines and is a recognized centre for Quality Improvement Programme (QIP) under AICTE. About 800 students are admitted every year in various undergraduate and post graduate disciplines. The institution is supported by about 375 staff members, both teaching and non-teaching. The college started admitting foreign students from 1979.

STRENGTHS

GENERAL

- TKM College of Engineering established in 1958 has been in the forefront of imparting quality education to students from India and abroad. The institution is keen in moulding its students into competent and confident professionals, equipping them to face technological challenges.
- Well qualified faculty and excellent infrastructure facilities
- All round and unstinted support from the Management in all activities and infrastructure development.
- Wi-Fi enabled smart class rooms.
- Central Library facility with more than 27,800 titles, 98,000 volumes, more than 100 scholarly journals in printed format and around 1900 e-journals.
- Students from diverse cultural backgrounds (National and International) enrich the socio-economic ambiance of the institute.
- Well maintained hostels, which can accommodate more than 2000 students, with internet facility and gymnasium.
- Active Innovation & Entrepreneurship Development Cell (IEDC) for encouraging and developing entrepreneurship spirit among students.
- Very active Career Guidance & Placement Cell (CGPU) that conducts campus interviews, workshops, seminars on personality development skills, communication skills, pre-placement trainings and group discussions for overall development of the students. More than 90% of eligible students are placed through campus placements.
- NSS unit and STEPS (Students of TKMCE for the Empowerment of Society), carry out social activities like stem cell donation camps, blood donation camps, assistance in educating students of orphanages etc., thereby instilling elements of social commitment in students.
- University level players in sports and games.

ACADEMICS

- Consistently produce top rank holders in University examinations in most of the branches.
- Maintains high faculty retention rate.
- Effectively implements curriculum through Information and Communication Technologies (ICT) based interactive practices, tutorial sessions and Quality Enhancement in Engineering Education (QEEE) courses.

- Keeps up well structured mentoring system to guide, support and motivate students in academic and personal matters.
- Maintains well-equipped state-of-the-art laboratory facilities.
- Regularly conducts seminars and workshops to ensure the coverage of curriculum gaps.
- Chapters of professional bodies working in the college frequently conduct conferences & seminars of technical interest, technical workshops, technical tours, meetings, quiz on a regular basis, motivating the students to keep pace with the latest advancements in technology.

FACULTY MEMBERS

- Highly experienced and dedicated faculty members with commitment to quality and ethical values.
- About 30% of the faculty members are Ph.D holders and more than 50% of the faculty members are pursuing Ph.D.
- Majority of faculty members with Ph.D are approved research guides of the University of Kerala and other Universities.
- Faculty members serve as technical members in various local and government bodies and are members of academic bodies like Board of Studies, Academic Council and Faculty of Engineering of the University of Kerala.
- Faculty members regularly participate in Seminars, Workshops, FDPs, STTPs and Conferences, which help them, improve research aptitude and teaching skills.

RESEARCH

- Civil and Mechanical Engineering Departments are approved research centres of the University of Kerala and QIP centres of MHRD for Ph.D programme.
- Approval as research centres awaited by the Departments of Electronics & Communication and Computer Science & Engineering.
- Collaborative research with institutions of International and National repute.
- Well equipped and state-of-the-art research labs.
- Well functioning Research Council for formulating R&D activities and related programs.
- International and national conferences and workshops conducted with a view to interact with the eminent resource persons and to inculcate research culture among faculty and students.

INTERACTION WITH INDUSTRY

- TKM College has Memorandum of Understanding (MoU) with organizations/ industries of national and international repute.
- Seminars and workshops are conducted with the participation of experts from industry, to bridge the gap between industry and academia.
- Industrial training and industrial visits help the students to supplement theoretical knowledge with practical experience and thereby improving their technical skills.

WEAKNESSES

- Lack of academic flexibility since the college is affiliated to University system.
- Limited number of collaborative research works with scientific organizations and reputed institutions.
- Less research projects from National and International funding agencies.
- Patents and IPRs by faculty are less.
- Entrepreneurship Development Cell must take initiatives to develop entrepreneurship spirit amongst students.
- MoUs with industry/ Universities to enhance collaborative research projects/ student internships.
- Potential alumni network in different areas like R&D, Civil Services etc., to be explored for obtaining funded research/ consultancy projects and for better industry – institute collaboration.
- Association with industries and research organizations to impart hands on training in all functional areas.

CHALLENGES

- Equipping students to cope with the changing trends in technology and industrial requirements, so as to improve employability.
- Shifting of technological education from theory based to application based to meet industrial demand.
- Equipping students to take-up real life problems and to train them in self-learning.
- Improving technical skills and communication potential of students.

FUTURE PLANS

- Flourish as a Centre of Excellence in Education and Research.
- Ensure campus placements to all students with emphasis on core companies.
- Set up a Fab-Lab under the guidance of Innovation & Entrepreneurship Development Cell (IEDC) at par with global standards.
- Start more post graduate programmes in various specializations.
- Enhance tie-up with industries (MoU) and other universities.
- Improve the research activities of the institute at par with the institutes of national reputation.
- Inculcate the spirit of entrepreneurship in students to venture in to start-ups and companies.

PROFILE OF THE COLLEGE

1. Profile of the Affiliated / Constituent College

1. Name and Address of the College:

Name :	THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING		
Address :	TKMC PO, Karicode, Kollam.		
City :	Pin : 691005	State : KERALA	
Website :	www.tkmce.ac.in		

2. For Communication:

Designation	Name	Telephone with STD	Mobile	Fax	Email
Principal	Dr. S. Ayoob	O: +91 474-2712024 R: +91 474-2705716	+91 8547515716	+91 474-2712023	principal@tkmce.ac.in
Vice Principal		O: R:			
Steering Committee Coordinator	Dr. N K Mohammed Sajid	O: +91 474-2712024 R:	+91 9497619579		nkmsajid@gmail.com

3. Status of the Institution:

Affiliated College	<input checked="" type="checkbox"/>
Constituent College	<input type="checkbox"/>
Any other (specify)	<input type="checkbox"/>

4. Type of Institution:

- a. By Gender
- i. For Men
 - ii. For Women
 - iii. Co-education
- b. By Shift
- i. Regular
 - ii. Day
 - iii. Evening

5. It is a recognized minority institution?

Yes

No

If yes specify the minority status (Religious/linguistic/ any other) and provide documentary evidence.

: Religious

F. NO: 324 of 2010 (Under Article 30 of the Constitution of India)

6. Sources of funding:

Government

Grant-in-aid

Self-financing

Any other

√

7. a. Date of establishment of the college: 3/7/1958

b. University to which the college is affiliated /or which governs the college: (If it is a constituent college)

UNIVERSITY OF KERALA & A P J ABDUL KALAM TECHNOLOGICAL UNIVERSITY

c. Details of UGC recognition:

Under Section	Date, Month & Year (dd-mm-yyyy)	Remarks(If any)
i. 2 (f)	F.No. 1-1-2004 (CPC-1/C), 1-06-2012	
ii. 12 (B)	F.No. 1-1-2004 (CPC-1/C), 1-06-2012	

(Enclose the Certificate of recognition u/s 2 (f) and 12 (B) of the UGC Act)

d. Details of recognition/approval by statutory/regulatory bodies other than UGC (AICTE, NCTE, MCI, DCI, PCI, RCI etc.)

Under Section/ clause	Recognition/Approval details Institution/Department Programme	Day, Month and Year (dd-mm-yy)	Validity	Remarks
i. AICTE	F.No. South-West/1-3352044672/2017/EOA	10-04-2017	2017-18	Yearly approval
ii. Council of Architecture	CA/5/Academic-KL02	16-06-2017	2017-18	1year

(Enclose the recognition/approval letter)

8. Does the affiliating University Act provide for conferment of autonomy (as recognized by the UGC), on its affiliated colleges?

Yes No

If yes, has the College applied for availing the autonomous status?

Yes No

9. Is the college recognized:

a. by UGC as a College with Potential for Excellence (CPE)?

Yes No

If yes, date of recognition: (dd/mm/yyyy)

b. for its performance by any other governmental agency?

Yes No

If yes, name of the agency and

Date of recognition: (dd/mm/yyyy)

10. Location of the campus and area in sq.m:

Location *	Urban
Campus area in sq. m.	64749.7
Built up area in sq. m.	31470.0

(* Urban, Semi-urban, Rural, Tribal, Hilly Area, Any others specify)

11. Facilities available on the campus (Tick the available facility and provide numbers or other details at appropriate places) or in case the institute has an agreement with other agencies in using any of the listed facilities provide information on the facilities covered under the agreement.

- Auditorium/seminar complex with infrastructural facilities-Yes
 - Auditorium - 1100 seating capacity
 - Seminar hall -250 seating capacity with Air conditioning (Jubilee hall)
 - Seminal hall-180 seating capacity with Air conditioning (APJ hall)
 - PTA hall -90 seating capacity with Air conditioning
 - Lecture theatre-100 seating capacity with Air conditioning
- Sports facilities
 - * Play ground - Yes
 1. Football field/Cricket/Athletic stadium (1No.)
 2. Volleyball Court (1No.)
 3. Tennis Court (1 No.)
 4. Basket ball Court (1 No.)
 5. Shuttle badminton court (2 courts)-Indoor
 6. Table tennis

- 7. Tennis practice wall (1 No.)
- 8. Cricket practice net (1 No.)
- * Swimming pool-Under construction
- * Gymnasium-Yes (Multi gym)
- Hostel (Total Accommodation-2359)
 - * Boys hostel
 - i. Number of hostels-6
 - ii. Number of inmates-1241
 - iii. Facilities (mention available facilities)
 - a. Health Club
 - b. Wi-Fi Connectivity
 - * Girls' hostel
 - i. Number of hostels - 3
 - ii. Number of inmates-789
 - iii. Facilities (mention available facilities)
 - a. Health Club
 - b. Wi-Fi Connectivity
 - * Working women's hostel
 - i. Number of hostels -1
 - ii. Number of inmates-329
 - ii. Facilities (mention available facilities)
 - a. Health Club
 - b. Wi-Fi Connectivity
- Residential facilities for teaching and non-teaching staff (give numbers available — cadre wise) -12 (Assistant Professor)
- Cafeteria —
 - ❖ Yes. Canteen is available inside the campus, where breakfast, lunch, tea and snacks are available during working days
- Health centre –

Health facility easily accessible from the college

 - ❖ First aid facilities are available at all labs and hostels
 - ❖ Qualified doctor and Nurse are available in Campus Medical Centre
 - ❖ Ambulance is available on phone call
 - ❖ Emergency vehicle and driver available round the clock
 - ❖ A hospital (Shifa Medical Centre) is located at 1km from college
 - ❖ Travancore Medical College Hospital is 4km away from the college
 - ❖ A A Rahim Memorial Government district hospital is 6km away from college
- Facilities like banking, post office, book shops:
 - 1) State Bank of India ATM facility available inside the campus, and 2 ATMs in close proximity to campus
 - 2) TKM College post office located adjacent to campus
 - 3) A Book shop of technical books is available inside the campus
 - 4)

- Transport facilities to cater to the needs of students and staff
 - 1) College bus-1No
 - 2) Public transport facility available from front of the college
 - 3) Distance to Railway Station (Kilikolloor) is less than 500m from the campus
 - 4) Distance to Thiruvananthapuram International Airport is 70km
- Animal house –Not available
- Biological waste disposal
 - 1) Biogas plant at hostel 7m³ capacity each (Ladies hostel-2Nos, Trust hostel-2Nos, Working Women’s hostel-1No)
 - 2) Biogas plant 10m³ capacity at Jubilee Hostel
 - 3) Septic tank for sewage treatment
 - 4) Biogas plant for canteen/college food waste
- Generator or other facility for management/regulation of electricity and voltage
 - 1) Three diesel generators are available (200kVA, 200kVA, 30kVA)
 - 2) UPS is available in all computer labs
 - 3) Centralized UPS system also installed
- Solid waste management facility
 - 1) Incinerator-1No in college campus-18m height
 - 2) Incinerator-1No in International Hostel -18m height
- Wastewater management
 - 1) Wastewater treatment plant at ladies hostel- Sedimentation, Filtration(pressure), Disinfection using chlorine
 - 2) UV treatment in water coolers for drinking water
- Water harvesting (Ground Water Recharging)
 - 1) Front side of the main building-8 pits of 10m³ capacity
 - 2) Front of Mechanical Engineering block-2 pits of 10m³
 - 3) Front of Chemical Engineering block-2 pits of 10m³
 - 4) Near Auditorium-1 pit of 10m³
 - 5) Near Workshop building –1 pit of 10m³

12. Details of programmes offered by the college (Give data for current academic year 2016-17):

Sl. No.	Programme Level	Name of the Programme/ Course	Duration (years)	Entry Qualification	Medium of instruction	Sanctioned/ approved Student strength	No. of students admitted
1	Under-Graduate	Civil Engineering	4	12 th	English	120	139
2	Under-Graduate	Mechanical Engineering	4	12 th	English	120	139
3	Under-Graduate	Mechanical Engineering (Production Stream)	4	12 th	English	60	67
4	Under-Graduate	Electrical & Electronics Engineering	4	12 th	English	110	133

5	Under-Graduate	Electronics & Communication Engineering	4	12 th	English	110	129
6	Under-Graduate	Chemical Engineering	4	12 th	English	60	67
7	Under Graduate	Computer Science & Engineering	4	12 th	English	60	69
8	Under-Graduate	Architecture	5	12 th	English	80	80
9	Post-Graduate	Structural Engineering and Construction Management	2	B. Tech	English	18	18
10	Post-Graduate	Computer Science & Engineering	2	B. Tech	English	18	18
11	Post-Graduate	Electronics and Communication Engineering (Communication System)	2	B. Tech	English	18	17
12	Post-Graduate	Industrial Refrigeration and Cryogenics	2	B. Tech	English	18	14
13	Post-Graduate	Master of Computer Application	3	B.Sc or BCA	English	60	36
14	Post-Graduate (Self Financing)	Computer Integrated Manufacturing	2	B. Tech	English	18	8
15	Post-Graduate (Self Financing)	Industrial Instrumentation & Control	2	B. Tech	English	24	17
16	Post-Graduate (Self Financing)	Power Systems	2	B. Tech	English	18	13

Note: The increase in admitted students over sanctioned strength is due to PIO/Foreign Students permitted by regulatory agencies.

13. Does the college offer self-financed Programmes?

Yes No

If yes, how many ?

14. New programmes introduced in the college during the last five years if any?

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Number	2
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15. List the departments: (respond if applicable only and do not list facilities like Library, Physical Education as departments, unless they are also offering academic degree awarding programmes. Similarly, do not list the departments offering common compulsory subjects for all the programmes like English, regional languages etc.)

Departments	UG	PG	Research
Civil Engineering	B.Tech in Civil Engineering	M.Tech in Structural Engineering and Construction Management	Approved research centre of University of Kerala & MHRD (QIP) Centre)
Mechanical Engineering	B.Tech in Mechanical Engineering	M.Tech in Industrial Refrigeration and Cryogenics	Approved research centre of University of Kerala & MHRD (QIP) Centre)
	B.Tech in Mechanical Engineering (Production Stream)	M.Tech in Computer Integrated Manufacturing	
Electrical & Electronics Engineering	B.Tech in Electrical & Electronics Engineering	M.Tech in Industrial Instrumentation & Control	
		M.Tech in Power Systems	
Electronics & Communication Engineering	B.Tech in Electronics & Communication Engineering	M.Tech in Electronics & Communication Engineering (Communication System)	Waiting for the order of approval as research centre of University of Kerala
Chemical Engineering	B.Tech in Chemical Engineering		
Computer Science & Engineering	B.Tech in Computer Science & Engineering	M.Tech in Computer Science & Engineering.	Waiting for the order of approval as research centre of University of Kerala
Architecture	B. Arch		
Master of Computer Application		MCA	

16. Number of Programmes offered under (Programme means a degree course like BA, BSc, MA, M.Com...)

- a. annual system
- b. semester system
- c. trimester system

16

17. Number of Programmes with : NA

- a. Choice Based Credit System
- b. Inter/Multidisciplinary Approach
- c. Any other (specify and provide details)

18. Does the college offer UG and/or PG programmes in Teacher Education?

Yes No

If yes,

a. Year of Introduction of the programme(s)..... (dd/mm/yyyy)
and number of batches that completed the programme

b. NCTE recognition details (if applicable)

Notification No.:

..... Date:

..... (dd/mm/yyyy)

Validity:.....

c. Is the institution opting for assessment and accreditation of Teacher Education Programme, separately?

Yes No

19. Does the college offer UG or PG programme in Physical Education?

Yes No

If yes,

a. Year of Introduction of the programme(s)..... (dd/mm/yyyy)
and number of batches that completed the programme

b. NCTE recognition details (if applicable)

Notification No.:

..... Date:

c. Is the institution opting for assessment and accreditation of Physical Education Programme separately?

Yes No

20. Number of teaching and non-teaching positions in the Institution

Positions	Teaching faculty						Non-teaching staff		Technical staff	
	Professor		Associate Professor		Assistant Professor					
	*M	*F	*M	*F	*M	*F	*M	*F	*M	*F
Sanctioned by the UGC / University	26	21	21	21	48	47	32	32	90	11
<i>Yet to</i>					1					
Sanctioned by the Management/ society or		1	1		17	26			1	1
<i>Yet to recruit</i>										

*M-Male *F-Female

21. Qualifications of the teaching staff:

Highest Qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Male	Female	
Permanent teachers							
Ph.D	23	13	6	4	8	3	57
M.Tech/M.Arch	3	7	10	12	30	39	101
M.Phil			2	1	2		5
MSc/ MCA/ MFA/			2	3	2	1	8
B.Tech/B. Arch					1		1
					Total		172
Temporary teachers							
Ph.D							
M.Tech/M.Sc		1	1		17	26	45
B. Arch							
Part-time teachers							
Ph.D.							
M.Phil./PG							
Total							

22. Number of Visiting Faculty /Guest Faculty engaged with the College: 45

23. Furnish the number of the students admitted to the college during the last four academic years:

Categories	2013-14		2014-15		2015-16		2016-17		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
SC	19	18	30	12	36	17	32	23	187
ST	3	3	3	2	4	2	2	4	23
OBC	164	93	185	93	207	96	196	67	1089
General	309	117	330	159	311	178	323	201	1940
Others	63	25	56	21	51	30	53	20	319
Total	558	256	604	289	609	323	606	315	3558

24. Details on students enrollment in the college during the current academic year (First year admission 2016-17):

Type of students	UG	PG	M. Phil.	Ph.D.	Total
Students from the same state where the college is located	718	128		2	848
Students from other states of India	9				9
POI students	64				64
Foreign students	0				0
Total	791	128		2	921

25. Dropout rate in UG and PG (average of the last two batches):

UG PG

26. Unit Cost of Education

(Unit cost = total annual recurring expenditure (actual) divided by total number of students enrolled)

(a) including the salary component

(b) excluding the salary component

27. Does the college offer any programme/s in distance education mode (DEP)?

Yes No

If ye

a) Is it a registered centre for offering distance education programmes of another University?

Yes No

b) Name of the University which has granted such registration.

c) Number of programmes offered

d) Programmes carry the recognition of the Distance Education Council.

Yes No

28. Student -Teacher ratio for each of the programme/course offered

UG

Year	Civil	Mechanical	Electrical & Electronics	Electronics & Communication	Computer Science	Architecture	Production	Chemical
13-14	14.67	16.45	14.58	15.57	16.00	12.00	15.5	12.86
14-15	14.87	16.30	14.66	19.20	16.50	15.00	14.6	12.86
15-16	15.20	16.00	15.75	20.47	17.00	18.00	17.15	12
16-17	13.7	16.00	16.6	19.29	16.08	16	17.15	12.86

PG

Year	Civil	Mechanical	Computer Science	Electronics & Communication	MCA
13-14	11.34	13.50	11.30	17.00	14.3
14-15	12.00	13.50	12.00	11.30	14.3
15-16	12.00	13.50	12.00	8.75	13.1
16-17	12	13.30	11.67	12	13.1

29. Is the college applying for:

Accreditation : Cycle 1

Re-Assessment:

(Cycle 1 refers to first accreditation and Cycle 2, Cycle 3 and Cycle 4 refers to re- accreditation)

30. Date of accreditation* (applicable for Cycle 2, Cycle 3, Cycle 4 and re-assessment only) NA

Cycle 1: (dd/mm/yyyy) Accreditation Outcome/Result.....

Cycle 2: (dd/mm/yyyy) Accreditation Outcome/Result.....

Cycle 3: (dd/mm/yyyy) Accreditation Outcome/Result.....

* Kindly enclose copy of accreditation certificate(s) and peer team report(s) as an annexure.

31. Number of working days during the last academic year:

182

32. Number of teaching days during the last academic year:

(Teaching days means days on which lectures were engaged excluding the examination days)

166

33. Date of establishment of Internal Quality Assurance Cell (IQAC) :

IQAC 13-10-2015

34. Details regarding submission of Annual Quality Assurance Reports (AQAR) to NAAC: NA

AQAR (i) (dd/mm/yyyy)

AQAR (ii) (dd/mm/yyyy)

AQAR (iii) (dd/mm/yyyy)

AQAR (iv) (dd/mm/yyyy)

35. Any other relevant data (not covered above) the college would like to include. (Do not include explanatory/descriptive information):

Faculty posts are created, sanctioned and approved by the Government of Kerala as per the academic workloads set by the University of Kerala as per norms set for the same. The institute does not have any direct role on this matter. All the posts sanctioned by the Government are immediately filled by the institute as per norms.

CRITERION I to VII

CRITERION I: CURRICULAR ASPECTS

1.1 Curriculum Planning and Implementation

1.1.1 State the vision, mission and objectives of the institution, and describe how these are communicated to the students, teachers, staff and other stakeholders.

Vision of the Institution

Excellence in education and research with socioeconomic and environmental outlook.

Mission of the Institution

- To offer state-of-the-art undergraduate, postgraduate and doctoral programmes.
- To enhance knowledge by engaging in cutting edge research and by undertaking collaborative projects with industry.
- To instil ethical, social and environmental perspectives in designing systems for sustainable development.
- To nurture creativity, self learning and interpersonal skills.

Objectives of the Institution

- Excel in all aspects of academic activity and produce socially responsible professionals.
- To create an environment for effective teaching-learning by encouraging the students and faculty to develop their intellectual curiosity, and scientific research capability.
- Regular monitoring and controlling the quality of all academic programs.
- To ensure the successful performance of the students in multidisciplinary ventures by developing their academic, co-curricular and extracurricular skills.

The Vision and Mission of the Institute are communicated in the following ways:

- Published in the webpage of the Institution(www.tkmce.ac.in).This is regularly visited by students, parents and faculty and periodically by the other stakeholders of the Institute.
- As exhibits, in classrooms, laboratories, staff rooms and other prime locations in the Institute. This is continuously visible to the students and faculty, and also to the parents who visit the campus.

- Printed on laboratory manuals and records. This will help the students, technical staff and faculty to be continuously reminded of the Vision and Mission of the Institute.
- Highlighted during faculty, PTA and alumni meetings, where the parents, alumni and other stakeholders are exposed to the Vision and Mission of the Institute.

1.1.2 How does the institution develop and deploy action plans for effective implementation of the curriculum? Give details of the process and substantiate through specific example(s).

The institution meticulously plans for effective implementation of the curriculum. The process is given below:

- In the beginning of the academic semester, the college prepares an academic calendar (semester-wise academic schedule) comprising the entire schedule for the semester. This is followed by an academic budget which enlists the academic programs for the respective semester with a budget planning. The College Planning Committee (CPC) scrutinizes and approves the programs listed and is forwarded to the Principal for necessary allocation of funds to individual departments.
- Before the end of current semester, the subjects for next semester from curriculum are given to the faculty. The subject priorities of faculty are presented before the Department Academic Committee (DAC) and approved. Options are given to students for selecting the elective subject, which in turn is consolidated by the Senior Advisor and presented to DAC.
- The opted subjects are allocated to faculty based on their field of specialization, number of times subjects taught and experience.
- In the beginning of each semester, a course plan is prepared. The concerned faculty for each subject prepares a detailed lesson plan, giving the units of the syllabus and proposed date of completion of the unit. It also provides information about the text books to be followed and the books for reference.
- A schedule for internal assessments is also prepared (internal assessment schedule) and distributed to students so as to avoid clustering of assessments during a particular period.
- The academic calendar and schedule of internal assessment are uploaded in Eazy Campus (campus management software) and can be easily accessed by the students.

- Course files are prepared and maintained by the faculty which includes syllabus, course plan, teaching materials such as tutorials, assignments, internal test question papers, previous year University question papers etc.
- Laboratory manuals are prepared incorporating detailed procedures for conducting of experiments.
- Apart from regular classes, seminars are conducted to enhance the presentation and communication skills of students.
- Academic Committee prepares academic calendar and monitors the functioning of course committee and class committees.
- The course committee monitors the conduct of the courses, adherence to the course plans and time schedule, completion of the syllabus, standards of internal tests, evaluation process and take suitable remedial actions regarding the conduct of the course.
- The Department Quality Assurance Cell (DQAC) approves the course plan for various courses and scrutinizes the question papers submitted for continuous evaluation.
- The class committee monitors the conduct of all the courses, overall performance of the students, faculty feedback, placements and industrial visits, and other grievances faced by the students and take suitable remedial actions at the appropriate time.
- For weaker students, remedial classes are conducted after the college working hours.
- Mid-term and end term faculty evaluations are taken from students and analysis is carried out for enhancing the teaching skills of the faculty.
- Attendance of the students is accessible to the parents through college website.
- The progress of the final year projects is monitored regularly and the progress report is maintained by the respective guide/project coordinator.
- Faculty members are permitted to attend various training programmes such as faculty development programmes at various prestigious institutions like IITs and IIMs to update their knowledge base and improve teaching skills.
- Institute has student chapters of professional societies like IEEE, ISTE, IET, MEA, IGS, IETE, IChE, CSI to keep pace with research and recent advancements.
- Stock verification of laboratories is done to identify instruments which require repair or are obsolete.

- Finally, at the end of each semester, University examinations are conducted to evaluate knowledge of students in the subjects.

1.1.3 What type of support (procedural and practical) do the teachers receive (from the University and/or institution) for effectively translating the curriculum and improving teaching practices?

The Institute/University provides its fullest support by providing all the facilities required by the teachers for effectively translating the curriculum and improving teaching practices.

- The University provides syllabus for each course, guidelines for practical's and books for references, which help teachers in proper understanding the layout of their subject. Examination schedules will be displayed on the website of the University. Based on this, curriculum can be planned effectively through course plans.
- The institute encourages the faculty members to participate in national and international seminars, FDPs and workshops for enhancing their knowledge. Further, in-house workshops, seminars and discussions are further organized to disseminate the inputs derived from the above orientation and refresher programmes. FDPs and expert lectures in specified areas are also conducted.
- Faculty members are also deputed for higher studies under QIP in top-ranking Institutes like IITs/NITs.
- In case new subjects are introduced by the University, eminent persons are invited for enlightening the teachers by conducting workshops. The University organizes curriculum revision workshops and teachers are invited to participate and express their views.
- The institute provides smart classrooms and internet facility in the campus for effective teaching.
- Teachers are appraised and guided through regular faculty meetings. The issues regarding the distribution of workload, organization of programmes, workshops, students' activities are discussed for the effective implementation of the curriculum. New teaching/pedagogical strategies to be adopted are formulated based on the result of previous examinations and academic status of newly enrolled students.
- Massive renovation of the college infrastructure as well as the up-gradation of laboratory facilities in the recent years ensures that no impediments remain in the way of efficient teaching.

- A Digital Library consisting of electronic resources such as e-journals, e-books and other digitized documents are available in the campus. DSpace is the software used for management of institutional repository. Previous year's question papers are available as part of the digital collection. Major resources such as e-books and e-journals are subscribed and renewed every year.

The details of the subject area training programs/pedagogical trainings, workshops, seminars, and Continuing Education Programs by expert faculty within the institute are listed in Table 1.1.1

Table 1.1.1 Subject area training programs, pedagogical trainings, workshops, seminars, and Continuing Education Programs organized or attended by expert faculty within the institute.

No.	Activity	Name of Coordinators	Year
1.	Induction Training Programme	Dr. B. Premlet	Nov. 2012
2.	Micro and Nano Scale Heat Transfer	Dr. Jose Prakash M. Dr. K. E. Reby Roy	Oct. 2013
3.	Advances in Industrial Management	Dr. C. A. Shajahan Prof. Muhammed Zakeer	Nov. 2013
4.	Computer hardware Maintenance and Trouble Shooting	Dr. Amarunnishad T. M.	Oct. 2013
5.	Algorithm Design Techniques	Prof. Dimple A. Shajahan	Oct. 2013
6.	Recent Trends in Nanotechnology	Prof. T. S. Krishnakumar Prof. Syed Muhammed Fahd	Oct. 2013
7.	Research Methodology for Engineers	Prof. Nizar Hussain M. Prof. Sudheer A.	Dec. 2013
8.	GIS application in Civil Engineering	Prof. Adarsh S.	Jul. 2013
9.	Computational Fluid Dynamics and its Applications	Dr. K. E. Reby Roy Prof. Mathew Skaria	Aug. 2013
10.	Engineering Application of LabView Software	Dr. Usha Devi Amma, Prof. Resmi R.	Aug. 2013
11.	Development of Communication Skills, Art of Teaching and Research	Prof. Asha Ravindranath, Prof. Fathima M. Kassim	Nov. 2013

12	Advances in Hydro Systems Modeling and Climate Change Impact Assessment	Prof.Vincent K. John Prof.Adarsh S.	Nov. 2013
13.	Advanced Digital Signal Processing	Prof.Sunitha Beevi K. Prof. Shaleena Manafuddin	Nov. 2013
14.	Recent Advances in Power Electronics and Industrial drives	Dr. Bijuna Kunju , Prof.Sindhu D. Pillai,	Dec. 2013
15.	PLC and SCADA	Prof. Shahina T. N.	Dec. 2013
16.	Workshop on Enhancement of TEI for Engineering Physics	Prof. Blessy Mathew	Jan. 2014
17.	Waste Management Issues and Priorities.	Prof. Najee M.	Mar. 2014
18.	New Frontiers in Geotechnical Engineering	Dr.Bushra I. Prof.Amal Azad Sahib	Jun.2014
19.	Application of Soft Computing Techniques in Power System	Prof. Sheeba R. Prof. Mohammed Mansoor	May 2014
20.	Workshop on Recent advances in Applied Mathematics	Prof. Teena Liza John	Nov. 2014
21.	Number Theoretic Algorithm	Prof.Shameem Ansar	Jan. 2015
22.	Accreditation, the ABET processes and some International Perspectives	Dr.D. Chithraprasad	Jan. 2015
23.	Advanced Mechanics of Materials	Dr. S. Jose Dr.Aju Kumar V. N.	Jun. 2015
24.	Workshop on Concrete for present and future	Prof. Benny Joseph Prof. Hazeena R.	Jun. 2015
25.	Combustion Theory and Computational Techniques	Dr. J. Nazar Dr. K. E. Reby Roy	Nov. 2015
26.	Computer Vision and Video Analytics	Prof. Sajeena A. Prof. Reshna S.	Dec. 2015
27.	Mathematical Challenges in Cyber Security	Dr. Nadera Beevi S. Dr. K. Geetha	Jan. 2016
28.	Machine Learning and Natural Language Processing	Prof. Aneesh G. Nath, Prof. H. A. Rahulnath	Jan. 2016
29	Tropical Landscape Design	Prof. Sunil Kumar	Mar.2016

30	Contemporary Developments in Optimization and its Application	Prof. Sheeba R.	May 2016
31	Building More Skills	Dr. Ushadevi amma Prof. Sunitha Beevi	May 2016
32	Biomedical Instrumentation and Image Processing	Prof. Ajitha S. S. Dr. Sheeba O	Jun.2016
33	How do I start my research	Dr. K. E. Reby Roy	Jul. 2016
34	Recent Trends in Biomedical Signal	Prof. Shabeer S. Dr. Gopakumar	Jul. 2016
35	Health, Safety and Environmental Management System	Prof. Mary Mathew Prof. Shan S.	Jul. 2016

1.1.4 Specify the initiatives taken up or contribution made by the institution for effective curriculum delivery and transaction on the Curriculum provided by the affiliating University or other Statutory agency.

The institute provides all supports required for effective implementation of the curriculum through excellent infrastructure and financial support.

- Academic calendar of the college for each semester is prepared which reflects various curricular activities planned during a semester which goes hand in hand with the University academic calendar. An internal assessment schedule is also prepared. Both these documents are uploaded in “Eazy Campus”, the campus management software for easy access.
- Effective delivery of curriculum is achieved through on-screen presentations, projectors, power point presentations and black board.
- Digital library, NPTEL facilities and the websites of certain renowned foreign Universities have been provided to increase efficiency in teaching and learning process.
- Mid-term and End-term feedback on faculty performance obtained from the students through ‘Eazy Campus’ is intimated to faculty and corrective measures are taken.
- The attendance of each student is regularly monitored and weekly assessed to ensure students maintain the required attendance percentage prescribed by the University.
- Permission is granted to students for using laboratories after college regular working hours.
- Provision of special/remedial classes for slow-learners.
- Invited lectures, seminars and workshops are conducted for the academic enrichment of students and faculty members.

- A two-way interaction between the course instructor and students/local faculty in the institute is provided under Quality Enhancement in Engineering Education (QEEE) programme. The main goal of QEEE program is to utilise high quality pedagogical resources to enhance learning in a wider student community. The modules for the programme include live classes, tutorials, and bridge courses. Under this programme, facilities have been arranged in the Lecture Theatre for participating in the live classes conducted by Professors of various IITs.
- Students are motivated to undertake industrial visits to obtain first-hand knowledge in various engineering aspects.

The following committees have been formed for the effective execution of the curriculum.

- **College Planning Committee (CPC):** Semester-wise academic planning is scrutinized and approved by CPC. Upon recommendations from CPC, funds for specified academic programmes are released by the Principal to the HODs accounts.
- **Department Academic Committee (DAC):** Overseeing the teaching learning process, co-ordinate advisory activities for all programmes. Gives recommendations for improving examination results and attendance of the students. Monitors the functioning of Course and Class Committees and appraises the Principal on any lapses found in academic matters to take required corrective actions.
- **Internal Quality Assurance Cell (IQAC)& Department Quality Assurance Cell(DQAC):** Scrutinize course plan, lesson plan, question papers for continuous evaluation and recommend suggestions for quality improvement.
- **Course Committee:** Monitors the conduct of the courses, adherence to the course plan and time schedule, completion of the syllabus and difficulties faced by the students and suggest suitable remedial actions at the appropriate time.
- **Research Council:** Review R&D activities and research programmes and advise on future directions to formulate guidelines on research integrity. Approve research proposals submitted by faculty for onward transmission to various funding agencies.
- **Student Affairs Committee:** The Student Affairs Committee addresses matters pertaining to the welfare of both the undergraduate and post graduate students of the institute, including both academic and non-academic matters. Develops strategies for maintaining discipline in the institute. The committee works for

upholding the highest principles of morality, justice, equality, liberty and fraternity.

- **Library Council:** Frames general rules for the management of Library. Allocates funds, from the sanctioned annual budget of the library, to the departments for the purchase of books, journals and periodicals. Arranges for the stock verification of the library and approves the stock verification report.
- **Ethics Committee:** Formulates and communicates the code of ethics of the institution to the students and employees. Reports breaches of ethics or non compliance of ethical practices by students, faculty and staff and recommends policies on corrective action to the Principal.
- **Environment Management Cell:** Formulates procedures to implement sustainable construction and green procurement wherever possible. Implement a waste minimization strategy and maintain a high recycling rate. Preserve and enhance the biodiversity of the campus. Empower and motivate staff, students and stakeholders through appropriate environmental education and communication.
- **Energy Management Cell:** Formulates procedures to utilize renewable energy sources. Empowers and motivates staff, students and stakeholders through appropriate awareness programmes to reduce energy consumption.
- **IT Cell:** Monitors and updates college website, prepares a plan for computerization of the institute's resources and its implementation. Monitors campus networking.
- **Examination Cell:** Conducts the University examinations as per rules and schedule provided by the University. Schedules and conducts internal examinations as per the college academic calendar by arranging examination halls and invigilators for the smooth conduct of examinations. Report to the authorities, any cases of malpractice by the students during the examination. Make arrangements for other all India examinations conducted by Institution of Chartered Accountants, Institution of Engineers, IIT (GATE), Public Service Commission etc.
- **Anti-Drug Cell:** Ensures a drug free campus by imposing a total ban on the possession or consumption/use of drugs and alcohol by students of the college, within or outside the campus. Organize antidrug awareness programmes in the college and hostels with the help of Government authorized agencies/organizations. Educates the students about the ill effects of drugs and alcohol.
- **Anti-Ragging Cell:** Ensures a ragging free campus by implementing the directions from regulatory bodies. Formulates Anti Ragging Squads and supervise their activity. Displays Anti Ragging boards in the campus, arrange

anti ragging awareness programs for the students/parents/faculty and staff with the help of Government authorised agencies/organisations. Collects affidavit against ragging from the students/parents/faculty and staff.

- **Innovation and Entrepreneurship Development Cell (IEDC):** Encourages and develops entrepreneurship spirit amongst students. Encourage and accelerate the up gradation of research and development (R&D) facilities in the college. Conducts seminars, conferences, workshops, training programs for the students, faculty and technical staff. Undertake major initiatives to assist in innovation promotion in the region. Encourages and supports students to be future entrepreneurs.

1.1.5 How does the institution network and interact with beneficiaries such as industry, research bodies and the university in effective operationalisation of the curriculum?

The Institute interacts with industry, research bodies and University for effective operationalisation of the curriculum. Interaction with alumni from industries and expert lectures from reputed organizations are organized. They guide students regarding career option in terms of research and employment opportunities in the industry.

Industry

Experts from industries are invited for presentations and discussions on relevant topics within and beyond the syllabus. Students are required to complete four industrial visits in different industrial organisations as part of their curriculum. Such visits give the students an exposure in understanding various activities carried out in industries. On completion of the industrial visit, the students are required to submit a report which is finally evaluated for awarding marks. Students are also encouraged to participate in industrial orientation programme from time to time by inviting experts and alumni from the industries. To keep abreast with the recent trends in the industries and to fulfil the requirements of the industries and for better placements, the following MoU's have been signed.

- Department of Mechanical Engineering
 - Liquid Propulsion System Centre (LPSC), Valiamala.
 - Indian Space Research Organisation (ISRO), Department of Space, Government of India.
- Department of Computer Science & Engineering
 - Tata Consultancy Service
 - Oracle
 - Kreara Solutions Technopark Thiruvananthapuram.
- Department of Civil Engineering

- Kerala Minerals & Metals Ltd. (KMML), Kollam
 - Steel Industrials Kerala Ltd. (SILK), Thrissur
 - Nirmithi Kendra, Kollam
- Department of Electrical and Electronics Engineering
- Kerala Electrical & Allied Engineering Co. Ltd., Kundara.
- Department of Electronics and Communication Engineering
- TATA ELXSI LIMITED (TEL) Thiruvananthapuram
 - NeST Thiruvananthapuram
 - SONY (under processing)
- Department of Chemical Engineering
- Syned Bioscience Pvt. Ltd. Cochin
 - Petrocil Engineers and Consultants Pvt. Ltd. Varkala
 - Bipa Drug laboratories Pvt. Ltd. Kottayam

Various curriculum development workshops are conducted at the Institute to discuss the contents of the curriculum. Experts from industry are invited to participate in these workshops.

The details of the participation of industry personnel in curriculum development are listed in Table 1.1.2

Table 1.1.2 Participation of industry personnel in curriculum development

No	Activity	Name of Expert	Institution	Year
1	M.Tech Curriculum Development(Civil Engg.)	Mr. UnnikrishnanA., Mr. Harilal	ABAD Builders Pvt. Ltd Kochi	Dec.2012
2	B.Tech Curriculum Development (Computer Science & Engg.)	Mr. Kishore Kumar, CTO.	OSPYN Technologies, Thiruvananthapuram.	Oct. 2013
3	Curriculum Development (Computer Science & Engg.)	Mr. Manu Nazareth	Java Architect, AirWatch Bangalore	Jan 2014
4	Syllabus revision workshop(Mechanical Engg.)	Dr.S.Ananthakumar	NIIST,Thiruvananthapuram	Mar.2014
5	M.Tech Curriculum Development(Computer Science & Engg.)	Dr. Santle A. Camilus, Chief Engineer.	Samsung India Research, Bangalore	Jul. 2015

The details of the Industry Institute Interaction Programme are listed in Table 1.1.3

Table 1.1.3 Industry Institute Interaction Programme

No	Name of Programme	Name of Institution	Year
1	Workshop on Industrial Practices of Product Development	IIT, Chennai IISc, Bangalore Intsolvers Technologies Pvt. Ltd, Thiruvananthapuram	Jul. 2013
2	Lab View and Multisim	National Instruments, Bangalore	Jul. 2013
3	Workshop on Application Development using JAVA	AirWatch Bangalore, Ospyn Technologies, Thiruvananthapuram	Oct. 2013
4	National Workshop on Nanoelectronic Materials and Devices	NIIST, Thiruvananthapuram, IISER, Thiruvananthapuram, CUSAT	Nov. 2013
5	Workshop on Android Application Development	Pantech ProEd Pvt. Ltd, Chennai	Dec. 2013
6	Workshop on Safety in Static and Mobile Uniformed Pressure Vessels	Controller of Explosives, Chennai	Feb. 2014
7	Invited talk on “ Volvo Trucks Design and Development”	Volvo India Pvt. Ltd	Mar. 2014
8	Invited talk on Design of Transformers.	TELK, Angamaly	Feb. 2016
9	Workshop on Lab View	Trident Tech Labs. Bangalore, Academic Franchise of National Instruments.	Feb. 2016
10	Invited talk on Power System Controlled and Load Management.	Power Grid Co-operation of India, Bangalore	Mar. 2016
11	Invited talk on Quality Management in Indian Industries	KEL, Kundara	Mar. 2016
12	Invited talk on Industrial Practices in Control System	VSSC, Trivandrum	Mar. 2016
13	Expert Talk on Present Trends in Mobile Telecommunication Systems	BSNL Training Centre, Trivandrum	Mar. 2016
14	Invited talk on Product Development in Industrial Perspective.	Business Strategy Skillveri Pvt. Chennai	Apr. 2016

The list of industries opted by the students for industrial visit and industrial training are listed in Table 1.1.4

Table 1.1.4 List of industries opted by the students for Industrial Visit and Industrial Training

No	Name of Industry	Activity
1	Kerala Minerals and Metals Ltd., Chavara.	Industrial visit
2	Mercedes Benz, Bangalore	Industrial visit
3	Cochin Shipyard, Cochin	Industrial visit
4	HMT, Kalamassery	Industrial visit
5	K.S.R.T.C, Regional Workshop, Thiruvananthapuram	Industrial visit
6	Kochi Metro	Industrial visit/training
7	Chennai Metro	Industrial visit/training
8	Brahmapuram Land Fill	Industrial visit
9	Cochin International Airport Ltd.	Industrial visit/training
10	KSEB 220 kV Substation (Paruthipara) Thiruvananthapuram	Industrial visit
11	Alapuzha Waste Treatment plant	Industrial visit
12	Delhi Metro Rail Corporation	Industrial training
13	KEL, Kundara	Industrial visit
14	NTPC, 400kV substation Kayamkulam	Industrial visit
15	HAL Bangalore	Industrial visit
16	DRDO LRDE, Bangalore	Industrial visit
17	TELK, Angamaly	Industrial training
18	KELTRON, Thiruvananthapuram	Industrial training
19	KDPP, Kozhikode	Industrial training
20	Dooradarshan, Thiruvananthapuram	Industrial visit
21	Terumo Penpol Pvt. Ltd., Thiruvananthapuram	Industrial visit
22	CDAC, Thiruvananthapuram	Industrial visit
23	ISRO, Thiruvananthapuram	Industrial visit
24	Sewage Treatment Plant, Muttathara, Thiruvananthapuram	Industrial visit
25	Hydro Electric Project, Idukki	Industrial visit
26	Water Treatment Plant, Aruvikkara, Thiruvananthapuram	Industrial visit

University

The University appoints faculty members as members of syllabus revision committees, question paper setters, chairmen of various academic bodies periodically. Maximum number of faculty is involved in the University examination answer script valuation. Regular 'Board of Studies' meetings conducted by the University and informal departmental meetings help faculty members keep themselves abreast of the latest trends in their domain of study. Faculty members have contributed towards curriculum development extensively as conveners/members of various 'Board of Studies' in Engineering and 'Faculty of Engineering.'

R&D

The Institute has interaction with R&D organizations to carry out research and consultancy projects. The students are involved in these activities by doing parts of project work. The facilities available in the Nanotechnology Research Centre are utilized by many industries/organizations such as National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram and Larsen & Toubro, Kollam etc.

The faculty members render assistance to R&D organisations through technical advice and consultancy services. Students are also associated with such activities.

To keep the research temper alive in the campus, research scholars from various fields are invited to the college to motivate the students to take up research projects in their further studies. The faculty members of the college are also motivated to take up research projects. Faculty members on their own also interact with various research bodies and participate in various research projects. The institute actively encourages the faculty to apply/obtain funded projects from various bodies such as MODROBS, CERD, IEEE, RPS, DST projects etc. This facilitates a constant interaction between research organizations and the college, faculty members and students, in order to improve research, patents etc. Most of the faculty members being member of professional bodies, attend International and National conferences which in turn help them in effective operationalization of curriculum.

The details of the International Conferences on R&D topics by the institution are listed in Table 1.1.5

Table 1.1.5 International Conferences on R&D topics

No.	Title	Coordinator	Year
1	1 st International Conference on Modeling and Simulation in Civil Engineering	Dr. Lalu Mangal	Dec 2011
2	IEEE International conference on Innovative Smart Grid Technology (ISGT India- 2011)	Dr. Bijuna Kunju, Prof.Sunitha Beevi K, Dr. B. Premlet	Dec 2011
3	2 nd International Conference on Modeling and Simulation in Civil Engineering	Dr. Bushra I	Dec 2013
4	International Conference on Advances in Computing, Communication and Information Sciences	Dr.D Chithraprasad	Jun 2014
5	International Conference on Advances in Chemical Engineering and Technology	Dr.K. B. Radhakrishnan	Aug 2014

6	International Conference on Signal and Speech Processing	Dr. K. Gopakumar	Aug 2014
7	International Conference on Emerging Trends in Electrical Engineering	Prof. Gayathri V, Prof. Deepthi M	Aug 2014
8	International Conference on Aerospace and Mechanical Engineering (ICAME'15)	Dr. M. Jose Prakash	Dec 2015
9	3 rd International Conference on Modeling & Simulation in Civil Engineering. (ICMSC 2015)	Dr. Bindu S. Dr. Anu V. Thomas	Dec 2015
10	International Conference on Global Techno Entrepreneurial Summit	Prof. Sudheer A	Apr 2016
11	International Conference on Signal and Speech Processing	Dr. Sheeba O.	Sep 2016

1.1.6 What are the contributions of the institution and/or its staff members to the development of the curriculum by the University?(number of staff members/departments represented on the Board of Studies, student feedback, teacher feedback, stakeholder feedback provided, specific suggestions etc.

The college makes significant contribution in the curriculum design and development through its staff members in the Board of Studies.

Faculty from various departments of the institute have served as members of Board of Studies (BoS), Chairmen of BoS, Members of Faculty of Engineering and Technology, and members of Academic Council for many years. Various curriculum development workshops are conducted at the Institute to discuss the contents of the curriculum. Corrective measures during the syllabus revision are reported to the Board of Studies.

Apart from above activity senior faculty and subject experts attend meeting/workshop arranged by University BoS Chairman for framing the syllabi. The Board of studies members are listed in Table 1.1.6

Table 1.1.6 List of Board of Studies members

Department	Faculty	Programme	Year
Mechanical Engineering	Dr. Roshan Kumar (FET*)	UG	2013-2016
	Dr. S. Jose(FET)	UG	
	Dr. P.N. Dileep(FET)	UG	
	Dr. Jose Prakash M.	UG	2011-2013
	Dr. H. Thilakan	UG	
	Prof. John Jacob	UG	
	Dr. M. Abdul Majeed	UG	

	Dr. V.Suresh	PG	
	Dr. J. Nazar	UG	2014-2017
	Dr. K. K. Abdul Rasheed	UG	
	Dr. H. Thilakan	UG	
	Dr. Jose Prakash M.	PG	2014-2017
Computer Science & Engineering	Dr. D. Chitraprasad	PG	2011-2013
	Dr. T. M. Amarunishad	UG	
	Dr. D. Chithraprasad	UG	2014-2017
Civil Engineering	Dr. S.Suresh	UG	2011-2013
	Dr. Lalu Mangal	UG	
	Dr. Anitha Joseph	UG	
	Dr. J. Sreekumar	UG	
	Dr. Sudhi Mary Kurian	UG	2013-2016
	Dr. R. Sajeeb	UG	
	Dr. S. Ayoob	UG	2014-2017
	Dr. S. Suresh	UG	
Prof. Gouri Antharjanam	UG		
Chemical Engineering	Prof. N. E. Jaffer	UG	2011-2013
	Prof. N. E. Jaffer	UG	2014-2017
Electronics & Communication Engineering	Dr. C. Unni	UG	2011-2013
	Prof. L. P. Lailamony	UG	2014-2017
	Dr. S. Suresh Babu	PG	
	Dr. Shahul Hameed	UG	
Electrical and Electronics Engineering	Dr. C. Ushadevi Amma	UG	2011-2013
	Prof. P. Prathapa Chandran Pillai	UG	
	Dr. C. Ushadevi Amma	UG	2014-2017
	Dr. Bijuna Kunju	PG	
Department of Architecture	Dr. A. S. Dili	UG	2011-2013
	Dr. Sumam Panjikkaran	UG	2014-2017

* FET – Faculty of Engineering and Technology

1.1.7 Does the institution develop curriculum for any of the courses offered (other than those under the purview of the affiliating university) by it? If ‘yes’, give details on the process (‘Needs Assessment’, design, development and planning) and the courses for which the curriculum has been developed.

No. The institution does not develop curriculum for courses that are not under the purview of the affiliating University.

1.1.8 How does institution analyze/ensure that the stated objectives of curriculum are achieved in the course of implementation?

Program Educational Objectives (PEOs) and Program Outcomes (POs) are defined at the department level. At the beginning of the semester, faculty prepares course objectives and Course Outcomes (COs). In the course plan, COs are mapped with POs. For internal assessments two ‘series tests’ are

conducted in a semester for each course. After first internal assessment test, the students scoring less mark are identified as slow learners and additional coaching is provided to cope-up with the subject and ensure understanding of the subject.

I. Direct Assessment: The programme is credit based with continuous evaluation. The internal continuous evaluation is conducted by the faculty handling the respective courses. The assessment tools utilized for various types of courses are mentioned below:

- Theory courses:
 - Assignments
 - Internal Tests
 - End Semester University Examination

- Practical Course
 - Lab class performance
 - Lab internal examination
 - End semester University lab examination

- Project/Seminar/Industrial visits
 - Preparation and presentation of reports.

Assignments: Evaluates the students' CO attainment level and gives them an opportunity to enhance their self learning capability of applying knowledge and exploring the most recent developments.

Internal Tests: Two internal tests (series tests) are conducted for each course. The question papers include both short answer and descriptive/problem solving type questions for duration of two hours. Questions are mapped with the COs so as to enable assessment of CO attainment.

Laboratory class performance: The assessment of lab work evaluates the students' ability to conduct experiments, document and analyse data, arrive at valid conclusions and interpret the results. This is documented through the rough and fair records maintained by the students. Lab experiments help students to work effectively as an individual and as a member of a team.

Laboratory Examinations: At the end of each lab course, an internal lab examination is conducted, to assess the knowledge and skills obtained by the students in the lab course. A viva-voce examination (oral test) is also conducted. After the completion of the semester, examination will be conducted for each lab by the University. The performance of student for this examination is evaluated by a team of two faculties; one from the parent institution (internal examiner) and the other from another institution (external examiner), both nominated by the University.

University Examination: At the end of every semester, University examinations for a maximum marks of 100 and duration of three hours is conducted covering the entire syllabus. Assessment of the answer scripts is carried out by competent faculty appointed by the University. For each course, the University assigns grades to the students by credit based system in a 10 point scale, considering the total marks obtained in the University examination and internal assessment marks. Based on the grade obtained by the student in a course and credit of that course, a grade point average (GPA) is assigned to the student in each semester. The GPA obtained by the student in various semesters is finally combined to get Cumulative Grade Point Average (CGPA) at the end of the programme.

The details of the scheme of assessment for Core/Elective Courses /Lab courses are shown in Table 1.1.7 and Table 1.1.8

Table 1.1.7 Scheme of Assessment for Core/Elective Courses

No	Description		Max. Marks	Max. Marks
1	Continuous Assessment Marks	Attendance (Maximum marks for 90% and above and proportionally less further)	10	50
2		Assignment	15	
3		Internal Test	Test 1 12.5 Test 2 12.5	
4	University Examination			100
5	Grading by University			Absolute Grading on a 10 point scale based on marks obtained out of 150

Table 1.1.8 Scheme of Assessment for Laboratory Courses

No	Description		Max. Marks	Max. Marks
1	Marks	Attendance (Maximum marks for 90% and above and proportionally less further)	10	50
2		Class Performance	20	
3		Lab Internal Test	20	
4	University Examination			100
5	Grading by University			Absolute Grading on a 10 point scale based on the marks obtained out of 150

Internal Evaluation of Seminar Course:

The evaluation is carried out during the seventh and eighth semesters, by a team comprising of two/three faculty members. The evaluation is based on the ability to prepare and present a new relevant topic. During the presentation the response of the student to technical questions, time management and the ability to motivate the audience to follow his/her presentation is also assessed. Preparation of seminar report is also a key factor for evaluation.

Internal Evaluation of Project Course:

The progress of project work is reviewed weekly by the project guide during the project period. Evaluation of project work will be carried out based on a three stage evaluation process. The approval of the topic and its preliminary evaluation are carried out in the seventh semester. The progress of the project work is evaluated during the interim evaluation and final assessment is done in the eighth semester. The project work will be evaluated by a team comprising of a project guide and a subject specific faculty team.

Viva-voce Exam:

The viva-voce is conducted towards the end of the programme by a team comprising of members of faculty from the parent institute (internal examiner) and another institute (external examiner). The quantum of knowledge (academic and non academic) acquired by the student during the programme is measured.

II) Indirect Assessment: The Course exit surveys, Alumni surveys, Employer surveys, Programme exit survey etc. are the tools employed for indirect assessment.

Course Exit Survey:

The exit survey is conducted at the end of each course. The questionnaire for the survey is prepared based on the course outcomes of respective courses. The indirect assessment of the course is based on survey which uses a Likert scale of 5 levels (3 for Strongly Agree, 2 for Agree, 0 for Neutral, -2 for Disagree and -3 for Strongly disagree.)

Alumni survey:

The performance of alumni in their profession is a valuable indicator of achievement of Programme Educational Objective (PEO). Alumni surveys are conducted by setting questionnaires that are suitable for validating the accomplishment of PEOs.

Employer survey:

The best method to evaluate the performance of graduates is to collect the response from their employers. So employer surveys are conducted by setting questions which are oriented towards the evaluation of attainment of PEOs.

Students are also taken to industries so that they will have firsthand knowledge on the practical applications of the concepts they have learnt in the class rooms. Industrial experts are also invited to give lectures on certain important topics of the curriculum.

1.2 Academic Flexibility

1.2.1 Specifying the goals and objectives, give details of the certificate/diploma/skill development courses etc., offered by the institution.

In addition to the regular courses, the college also offers certification courses which add more value to the graduates. The prime objective is to focus on continuous education and skill up gradation. The courses are listed in the Table 1.2.1

Table 1.2.1 Certification/ Skill Development courses offered by the institution.

No	Title	Department
1	Bentley Certificate for training in STAAD (InterCAD Institutes)	Civil Engineering
2	Autocad 2D	Civil Engineering
3	Basic Computer Skills	Civil Engineering
4	Awareness Programme on Effective Conduct of Civil Engineering Laboratory Classes	Civil Engineering
5	Language Acquisition Program	Civil Engineering
6	Safety Practices in Laboratory Equipment and Maintenance	Chemical Engineering
7	Repair and Maintenance of Computer Hardware	Electronics and Communication Engineering
8	Workshop of Maintenance and Repair of Electronics Equipments	Electronics and Communication Engineering
9	Safety Practices and Maintenance	Electrical and Electronics Engineering
10	Lab Management	Electrical and Electronics Engineering
11	Training for Software Packages in Electrical Engineering	Electrical and Electronics Engineering
12	Finite Element Method and its Application in Engineering	Mechanical Engineering
13	Computer Aided Drafting for Designers	Mechanical Engineering
14	Workshop on Office Procedures	Library/ Office
15	Workshop on Introduction to Microsoft Office and Basics of Internet Browsing	Library/Office
16	Workshop on Koha	Library/Office
17	Workshop on Dspace	Library/Office
18	Workshop on Web Application development using PHP and HTML.	Computer Science & Engineering

**1.2.2 Does the institution offer programmes that facilitate twinning/dual degree?
If “yes”, give details.**

No, there is no provision for dual degree programme as per University norms.

1.2.3 Give details on the various institutional provisions with reference to academic flexibility and how it has been helpful to students in terms of skills development, academic mobility, progression to higher studies and improved potential for employability.

Yes, the institution offers academic flexibility which is helpful to students in skill development, academic mobility, progression to higher studies and improved potential for employability. The various provisions offered are enlisted below.

Range of Core/Elective options offered by the University and those opted by the College

Core Courses

The core courses emphasize on fundamental aspects together with design methodologies and throw open avenues for its applications. Registration for all the core subjects is mandatory. Students enhance their academic and employability skills through the following:

- Tutorial sessions are made mandatory for most of the courses to acquire in-depth knowledge of the subjects.
- Additional lecture hours introduced for problem oriented and difficult subjects.
- Invited talks by eminent personalities from industries and renowned institutions
- Projects, mini projects and industry based final year projects
- Seminars by students
- Industrial visits
- Teaching content beyond the syllabus in theory and practical courses

Elective Options

The students of UG and PG courses have the flexibility to choose from a specified range of electives depending on the curriculum. In UG, out of 259 electives specified in the curriculum, 89 electives are offered and out of 150 electives in PG, 50 electives are offered by the institution. The elective subjects offered are based on the latest technological trends and industrial needs so that, at the end of the programme, the student will be ready to face the challenges in the industry.

For example, the Table 1.2.2 gives the range of electives available in the Kerala University syllabus-2008 scheme and those offered by the Department of Computer Science & Engineering

Table 1.2.2 Range of electives offered by the Institution in the Dept. of Computer Science& Engineering Department

Semester	Electives as in Curriculum	Electives Offered
7 (Elective I)	08.704A -Computational Geometry	08.704A-Computational Geometry
	08.704B -Multimedia Systems and Data Compression	08.704B-Multimedia Systems and Data Compression
	08.704C -Communicative English and Technical Writing	08.704E -Control Systems Engineering
	08.704D -Pattern Recognition and Scene Analysis	
	08.704E -Control Systems Engineering	
7 (Elective II)	08.705A-Advanced Data Base Management System	08.705A-Advanced Data Base Management System
	08.705B -Computer Hardware and Interfacing	08.705B-Computer Hardware and Interfacing
	08.705C -Neural Computing	08.705C -Neural Computing
	08.705D -Data Mining Techniques	08.705D -Data Mining Techniques
	08.705E -C# and .NET Framework	
8 (Elective III)	08.805A -Fuzzy Set Theory and Applications	08.805A -Fuzzy Set Theory and Applications
	08.805B -Software Architecture	08.805C -Mobile and Wireless Networks
	08.805C -Mobile and Wireless Networks	08.805D - Graph Theory
	08.805D - Graph Theory	
	08.805E -Soft Computing	
8 (Elective IV)	08.806A -Artificial Intelligence	08.806A-Artificial Intelligence
	08.806B -Digital Image Processing	08.806B -Digital Image Processing
	08.806C -Embedded Systems	08.806C-Embedded Systems
	08.806D -Internet Technology	08.806D -Internet Technology
	08.806E -Bioinformatics	

Choice Based Credit System and range of subject options – No, as per the norms of AICTE, there is no Choice Based Credit System and range of subject options.

Courses offered in modular form

Yes, as per guidelines of AICTE, all the courses are structured and is offered in modular form. The syllabi of the courses are divided into sub modules pertaining to specific aspects of study and each sub-module is in turn related with each other.

Credit transfer and accumulation facility

Yes, an Inter University credit transfer is possible. As per regulation, students can take admission to the second year in another University within the state based on seat availability and rank eligibility. Students opting for Inter University transfer can get their credit score transferred to the new University following the norms and regulations of the new University.

Lateral and vertical mobility within and across programmes and courses

In UG, the students who have passed Diploma in Engineering can apply for lateral entry admission to the programme in the third semester. The students are given enormous leeway to move across various disciplines for their project work and also for the choice of electives. The students can get assistance from faculties across departments and can also use any laboratory equipment available in the campus for purpose of project work/research. Under KTU, there is a provision to award B.Tech Honours for the students who earn more than 8 GPA in the first four semesters, provided they earn additional 12 credits and have an overall GPA of above 8 for the entire programme.

Enrichment courses

Every department offers aptitude classes that enable students to attend campus interviews with ease. The Career Guidance and Placement Unit (CGPU) within the institution offers enrichment programmes like placement training, soft skill training, industrial and R&D centre visits. Expert talks, guest lectures, webinar are arranged to cover content beyond syllabus and expose them to latest technologies. Communication and interpersonal skills of students are enhanced through language laboratories. The audio-visual support to language learning, imparts self-confidence which boost their morale as a professional student. Every department arranges industrial visits for the final year and pre-final year students based on the relevant subjects of that term. The visit helps students to get the feel of real time environment and implementation of the subject concepts in the practical fields.

1.2.4 Does the institution offer self-financed programmes? If “yes”, list them and indicate how they differ from other programmes, with reference to admission, curriculum, fee structure, teacher qualification, salary etc.

Yes. The institution offers self-financed post graduate programmes which are listed in Table 1.2.3.

Table 1.2.3 Self-financed programmes offered by the institution

No	Programme	Department	Mode	Total seats
1	Computer Integrated Manufacturing (CIM)	Mechanical Engineering	Regular (Full Time)	18
2	Industrial Instrumentation and Control (IIC)	Electrical and Electronics Engineering	Regular (Full Time)	24
3	Power System (PS)	Electrical and Electronics Engineering	Regular (Full Time)	18

The curriculum, qualification and the salary for the teachers are as per UGC/AICTE guidelines. In self-financed programmes, the distribution of seats will be 50% merit quota and rest 50% management quota. But for the other programmes the distribution of seats will be 85% merit quota and 15% management quota. For merit seats, selection will be based on the rank list published by Director of Technical Education(DTE) Kerala.

There is a difference in eligibility and fee structure offered.

Eligibility for Self-financed Programmes

- The candidate must have completed the graduate course from an institution approved by the AICTE
- The candidate should have a B.Tech Degree in the respective branch of Engineering recognized by University of Kerala.
- Candidate should have a minimum of 60% aggregate marks in the engineering degree examinations. For SC/ST candidates a pass in the engineering degree course is sufficient
- Candidate who have passed AMIE/AMIETE Examination and satisfying the following conditions are eligible for admission.
 - (i) They must have valid GATE Score.
 - (ii) A minimum marks of 55% for the section B in AMIE/AMIETE examination
 - (iii) A minimum 3 years of professional experience in the field of specialization after acquiring the qualifying degree.
- Candidates who have appeared for the final examination may also apply provided the results are made available at the time of admission.

For aided programmes, reservation and tuition fees is as per Kerala Government norms. The fee structure for the self-financed courses is shown in Table 1.2.4

Table 1.2.4 Fee structure for the self-financed programmes

No	Year	Branch	I Semester (Rs)	II Semester (Rs)	III Semester (Rs)	IV Semester (Rs)	Remarks
1	2011 - 12	CIM & IIC	63,420	45,000	45,000	45,000	One time caution deposit of Rs 5000/-
2	2012 - 13	CIM & IIC	76,715	60,000	60,000	60,000	
3	2013 - 14	CIM & IIC	74,815	60,000	60,000	60,000	

4	2014 - 15	CIM & IIC	78,315	65,000	65,000	65,000
5	2015 – 16	CIM & IIC	80,500	75,000	75,000	75,000
6	2016-17	CIM,IIC &PS	65,500	60,000	60,000	60,000

1.2.5 Does the college provide additional skill oriented programmes, relevant to regional and global employment markets? If yes, provide details of such programme and the beneficiary.

Yes, The college regularly conducts personality development programmes which enhance the IQ level and communication skills of students. The college also invites speakers from the industry which provides regional and global employment opportunities to students. Special classes are arranged for improving communication skills, taking into considerations the rural background of students. The Career Guidance and Placement Unit (CGPU) in the college plays a major role in organising group discussions, expert talks and pre-placement talks which enhance the employability of students.

Activities under Carrier Guidance and Placement Unit(CGPU) are enlisted in Table 1.2.5

Table 1.2.5 Various activities under CGPU

No.	Activity	Organised by	Beneficiary	Month & Year
1.	Talk on ‘Value Engineering’	J. Sathe, TCS	8 th semester students	Aug. 2013
2.	‘SBI TELLER WINDOW’	Mr.M. RamaNarayanan, Mr P.K. Balachandran Mr. Sathish Kumar	8 th semester students	Aug. 2013
3.	Talk on Define Your Future	Mr. Shobi Sivadasan, Associate Dean of Graduate Admissions, Stevens Institute of Technology, New Jersey	8 th semester students	Aug. 2013
4.	Pre placement Talk	Experts from TCS	8 th semester students	Sep. 2013
5.	Employability Enhancement Program	Mrs. Sindhu Career Consultant. Organised by IEEE &CGPU	8 th semester students	Oct. 2013
6.	Programme on Digital trends and Applicability for Industries	Mr. Santhosh C. Kurup, Branch Head, TCS	MCA and M.Tech students	Nov. 2013
7.	IT orientation Programme	Suresh Panampilly, ICP TCS Global Head	4 th and 6 th semester	Jan. 2014

			students	
8.	Career Advancement Orientation	Career Launcher India Ltd.	6 th semester students	Jan. 2014
9.	Soft Skills Training	Career Launcher India Ltd.	4 th , 6 th and II MCA students	Mar. 2014
10.	Employability Enhancement Training Programme	Career Launcher India Ltd.	1 st MCA and 6 th semester students	Mar. 2014
11.	Bank Tests Orientation programme	Career Launcher India Ltd.	8 th semester students	Jun. 2014
12.	Motivation Talk	Jacob K. Palamoottil, Joint Director, CISRE, Air Head Quarters, New Delhi	8 th semester students	Jun. 2014
13.	Employability Enhancement Training	Focus Academy for Career Enhancement(FACE)	8 th semester students	Jun. 2014
14.	Induction Programme	FACE, Insight job guru and Career launcher India Ltd.	1 st semester students	Aug. 2014
15.	Indian Navy Focused Training Programme	Career launcher India Ltd.	8 th semester students	Oct. 2014
16.	Employability Enhancement Training Programme	Mrs. Sindhu Career Consultant.	1 st and 3 rd semester MCA students	Oct. 2014
17.	Employability Enhancement Training	Career launcher India Ltd.	3 rd MCA students	Oct. 2014
18.	Higher Study Opportunities in US	US Consulates	6 th and 8 th semester students.	Jan. 2015
19.	Interactive Session on International Education	Mr. Jayesh and Stephen Jacob. (Career launcher India Ltd.)	6 th and 8 th semester students.	Mar. 2015
20.	Interactive Session on "Career Road Map" for B.Tech Graduates	Dr. Rijo Jacob Thomas from CGPU, TKMCE.	7 th semester students	Jul. 2015
21.	Motivational Talk	Mr. Sandeep, Career Consultant, FACE	B.Tech and MCA Students	Jul. 2015
22.	Employability	TCS Experts	7 th semester	Aug.

	Enhancement Training		students	2015
23.	Employability Enhancement Training	Mr. Sandeep, Career Consultant, FACE	7 th semester students	Sep. 2015
24.	Employability Enhancement Programme	Deepak and Sandeep PRAGMATIX, Kochi	7 th semester students	Sep. 2015
25.	Interactive Session on “Campus French”	Alice Gauny Director of the Alliance Francaise de Thiruvananthapuram	7 th semester students	Sep. 2015
26	Introduction to Training and Placement	Dr. Sunil kumar Dr. Rijo Jacob Thomas	7 th semester students	Jul. 2016
27	Placement Training	FACE, Career Launcher India Ltd, PRAGMATIX	7 th semester students	Jul. 2016
28	TCS Employability Session	TCS	7 th semester students	Aug. 2016
29	ACCENTURE Career Day	ACCENTURE	7 th semester students	Aug. 2016
30	Communication and Public Speech	Dr. Pradeep Sundaesan	7 th semester students	Aug. – Sep. 2016 (All working days, 4-6pm)
31	Mock Interview	PRAGMATIX	7 th semester students	Aug.2016
32	Interpersonal Skill Development	Career Launcher India Ltd.	7 th semester students	Aug. 2016
33	TCS Career Day	TCS	7 th semester students	Aug. 2016

The details of the skill oriented programmes offered by the institution under Technical Education Quality Improvement Programme (TEQIP) are listed in Table 1.2.6.

Table 1.2.6 Skill oriented programmes offered by the institution

N o	Activity	Resource Person	Organisation	Month & Year
1.	Expert lecture	Dr.Arun Roy	Vice President and Business Head, Aerospace and defence	Jul. 2013

2.	Expert lecture	Sri. Bhadran V. K.	C-DAC	Jul. 2013
3.	Industrial Visit	Mr. Pramod P. Mani, Manager	IRE, Chavara , Kollam	Jul. 2013
4.	Expert Lecture	Mr. Chandrabose J	Network Shared Service Center Functions, Corporate center, Systema Shyam Teleservices Ltd.	Aug. 2013
5.	Expert Lecture	Mr. Shaneeth	VSSC, Thiruvananthapuram	Aug. 2013
6.	Expert Lecture	Dr. Gangan Prathap	NIIST, Thiruvananthapuram	Sep. 2013
7.	Industrial Visit	Mr. Rahul N.	ITI Ltd, Palakkad	Sep. 2013
8.	Industrial Visit	Mr. Siva Prasad	NeST, Thiruvananthapuram	Dec. 2013
9.	Industrial Visit	Mr. Jacob Kurian	The Travancore – Cochin Chemicals Ltd., Ernakulum	Jan. 2014
10.	Career Advancement Orientation	Experts from Career Launcher India Ltd	Career Launcher India Ltd	Jan. 2014
11.	Industrial Visit	Santhosh Kumar J. General Manager	Hindustan Insecticides Limited, Ernakulum	Jan. 2014
12.	Expert Lecture	Sri. Salil C. L.	Texas Instruments, Bangalore	Mar. 2014
13.	Expert Lecture	Mr. Balakrishnan	SFO technologies, Kochi	Mar. 2014
14.	Industrial Visit	Dr. P. T. Ajith Kumar	Light Logics, Thiruvallom	Mar. 2014
15.	Industrial Visit	Sri. Sreekumar V.	TATA ELXSI	Mar. 2014

16.	Expert Lecture as part of Industrial Visit	Sri. Bhadran V. K. Smt. Ramani B.	C-DAC, Thiruvananthapuram ISRO, Thiruvananthapuram	Mar. 2014
17.	Expert Lecture	Wg Cdr(Rtd) Simon K. John	Regional Center for Military Airworthiness (Engines), CEMILAC, Ministry of Defence, Bangalore	Mar. 2014
18.	Industrial Visit	Dr. Ajit Haridas	NIIST, Thiruvananthapuram	Mar. 2014
19.	Expert Lecture	Dr. Sethu Nath,	VSSC, THIRUVANANTHAPURAM	Apr. 2014
20.	Expert Talk	Sri.A.P.Baiju	ISRO, THIRUVANANTHAPURAM	Jan. 2015
21.	Expert Lecture	Miss Sujatha Rajagopal	IBM Bangalore	Jul. 2015
22.	Expert Lecture	Prof V. K. Damodaran	INGCORE	Aug. 2015
23.	Expert Lecture	Mr.Paul P. George	ISRO, THIRUVANANTHAPURAM	Dec. 2015

1.2.6 Does the University provide for the flexibility of combining the conventional face-to-face and Distance Mode of Education for students to choose the courses/combination of their choice” If “yes”, how does the institution take advantage of such provision for the benefit of students?

No, as per the statutes of University of Kerala and KTU, there is no provision for combining regular and distance modes of education.

1.3 Curriculum Enrichment

1.3.1 Describe the efforts made by the institution to supplement the University's Curriculum to ensure that the academic programmes and Institution's goals and objectives are integrated?

The vision of the Institution, 'Excellences in education and research with socio economic and environmental outlook,' has been envisaged through various activities over the past 57 years. The programmes offered by the institution are oriented through its curriculum to attain this goal. Every graduate is nurtured in the campus by various activities to develop as a complete individual meeting the objectives laid out by the institution.

The institution follows the curriculum prescribed by the University of Kerala/KTU. The institution takes effort for supplementing the curriculum in tune with the recent advancement in the field of engineering. List of activities regularly conducted/organized by the institution to meet such requirements are as follows.

- Institution arranges facility for the students to attend Quality Enhancement in Engineering Education (QEEE) programmes (Initiative of Department of MHRD, Govt. of India) through video conferencing which enables the students to get a better understanding of that particular subject.
- Students are given opportunities to arrange technical festivals which enable to enhance their organizing and management capabilities.
- Institution arranges industrial visits and encourages the students to undertake projects from industry to make them conscious of the challenges in industries.
- Conferences and expert talks are arranged for the students under the auspices of professional bodies like IEEE, ISTE, IEI, IETE, CSI, etc and branch associations which provides a platform to enhance their technical knowledge and soft skills by interacting with resource persons of expertise from various fields.
- Institution has an active unit of NSS which helps the students to take up socially relevant projects, thereby imparting social commitment and environmental awareness. Student branches of all professional bodies, college union, alumni association and STEPS take initiatives to solve socially relevant problems, which are minimally addressed by the curriculum.

1.3.2 What are the efforts made by the institution to enrich and organize the curriculum to enhance the experiences of the students so as to cope with the needs of the dynamic employment market?

The process of enhancing the experience of the students so as to cope with the needs of the dynamic employment market starts with the formation of a syllabus revision committee by the 'Board of Studies in Engineering' of the University of Kerala. Every year, at least one faculty from each department will be a member of this committee. The recommendations proposed by the various departments of the institution will be discussed in a meeting/workshop of members of the Board of Studies of the University of Kerala, with invited experts from industries and institutions. The deliberations of the above workshop will be considered for revising the curriculum with new scheme and syllabus.

New courses, new delivery methods and new electives are introduced to meet the needs of the industry. These improve the employability of the graduates and keep the students abreast with the modern tools. They are introduced to various labs, namely, Total Station for surveying, FAB LAB for product, energy auditing by Power Quality Analyser, latest analysis software, CAD lab for design, and particle size analyser. Additional soft skill and technical skill updating programmes are organised by CGPU and other professional societies.

1.3.3 Enumerate the efforts made by the institution to integrate the cross cutting issues such as Gender, Climate Change, Environmental Education, Human Rights, ICT etc., into the curriculum?

- “Socio Economic and Environmental Outlook” forms the basis for the vision of the institution. This is primarily aimed at the activities for accommodating and uploading the climatic changes, environment, gender equality, human rights, ICT and modern tools.
- The Institution has always been pioneers in making voluntary efforts in human rights and equality. This commitment is evident from various cells and organizations functioning in the campus.
- An Integrated Community Service Centre (ICSC) is functioning with the vision of offering technical and scientific support for the socio-economic development of people, especially the underprivileged and the marginalised sections of the society. Other cells functioning in this regard include, NSS, Anti-Ragging Cell, Student Affairs Cell, Ethics Committee, Anti-drug Cell, Women’s Cell, Energy Cell, Grievance Cell, Environment Cell, etc.
- The number of females (students, faculty & staff) is comparable with the number of males in the campus. Department of Electrical & Electronics Engineering has the ratio of women faculty to men as 4:1. The success story of the department hails the capability of women faculty in this institution. Special attention is given to women, by arranging special counselling as well as cultural and societal programmes, by Women Cell and Women in Engineering affinity group of IEEE.
- As per the gazette notification of Government of India an Internal Complaints Committee has been setup in the institution to deal with Prevention, Prohibition and Redressal of sexual harassment of women at workplace.
- NSS, Bhoomithra Sena, College Union and Literary and Debate Club are organizations which provide platforms for students to organize and participate in programmes connected with climate and environmental concerns. The college students union plays a major role in reinforcing the societal responsibilities of the students through every programme arranged such as photographic exhibition, short films, stem cell donation, college magazine, etc.
- The campus management is done in a democratic manner where staff and students have opportunity to express their choice through students union and staff organizations. Most of the committees functioning in the college have representations from entire cross section of student and staff community. In addition to this, various scholarships are provided for SC/ST and minority groups. World Bank funded books are also available in our library exclusively for them.
- All the class rooms are smart classes equipped with LCD projectors and Public Address Systems. Campus and hostels are provided with Wi-Fi connectivity. Enormous number of e-books and subscription to digital versions of IEEE,

Elsevier and major international publications help the students in learning throughout their academia.

1.3.4 What are the various value-added courses/enrichment programmes offered to ensure holistic development of students?

Moral and Ethical Values

The Ethics Policy of the Institution is as follows:

The ethics policy warrants ability to discern right from wrong, good from evil, and the commitment to do what is right, good and proper, for each individual within the college.

Academic Ethics

Create an environment within the college campus where ethical behaviour is the norm, enhance the worth, dignity, potential, and uniqueness of each individual within the institution and thus to the service of society. Commit in contributing to the comprehensive education of students, protecting human rights, advancing knowledge of student growth and development. Promote the effectiveness of institutional programs, services, and organizational units. Emphasize commitments to safety, public health, environmental protection, and sustainable development.

Personal Ethics

Actions and beliefs of all individuals to be consistent with the Six Pillars of character trustworthiness, respect, responsibility, fairness, caring and citizenship. Assure ethical behaviour by self-regulation and promotion of tolerance. Treat fairly all persons regardless of factors such as caste, religion, gender, disability, or nationality Do to others as you would expect others do to you.

Research Ethics

Uphold the reputation of the college as a centre, for properly conducted, high quality scientific research in thrust areas, promote honesty, carefulness, responsible publication, and respect for intellectual.

The institute has a strong advisory system to keep track of the moral and ethical values of the students and to closely monitor the ethical behaviour of the students as individuals, as well as working as a team member during all the academic activities. A group of two junior advisors and a senior advisor takes care of each class and take utmost care in assuring a high level of ethical standards among the students. There is an anti-ragging cell working efficiently in the campus to prevent any issues which will directly or indirectly affect the moral and ethical standards of students. The institute also gives importance to prevent the use of liquor and drugs in the campus through anti-drug cell. The institution usually conduct awareness programs for propagating the significance of moral and ethical values, as part of the above said units.

The college students union also conducts programs in this regard, upholding social commitments. A charity organization, STEPS (Students of TKM for the Empowerment of People and Society) has been formed by the college union, specifically for inculcating the moral and ethical values in students. They contribute in person and in material to the downtrodden of the society in the Government hospitals and orphanages. Stem cell and blood donation camps,

organized by the students, have been acclaimed by the social activists. Professional organizations like IEEE also contribute by conducting free medical camps & free assistance in studies for children in orphanages.

Employability and Life Skills

The Career Guidance and Placement Unit (CGPU), Entrepreneurship Development and Innovation Cell, department level student associations and student branches of professional bodies organize programmes for improving the soft skills and employability at various levels from first year to final year. The CGPU of the college is working as a team under the leadership of the coordinator. The team consists of the committee members from each department and a group of dedicated students. Every activity of the unit is monitored by the coordinator. The unit arranges periodic training and personality development programs and also helps students in arranging vacation training programs and project works in industries. The unit also plays a vital role in motivating students for higher studies through various counselling programs. The unit pays special care to invite reputed companies to the campus and extends top quality facilities to conduct the recruitment process. CGPU helps a large number of students to secure employment in reputed organizations every year.

Better Career Options

The major recruiters/companies include sectors such as Information Technology and IT enabled services, Heavy Engineering, Automotive, Embedded Electronics, Banking and Finance, Indian Defence, etc. Some of the major recruiters are shown in Table 1.3.1

Table 1.3.1 Major Recruiters

No.	Company	No.	Company	No.	Company
1	L & T	16	TATAELXSI	31	CAPEGEMINI
2	AIR WATCH	17	HCL	32	INFOSYS
3	FLYTXT	18	MERCHAT NAVY	33	SIEMENS
4	TCS	19	SOBHA DEVELOPERS	34	WIPRO
5	NeST	20	FACE	35	MAHINDRA
6	SUNTECH	21	FEDERAL BANK	36	SOBHA
7	NUEDESIC	22	ENVESTNET	37	MICROSOFT
8	IBS	23	ELGI	38	APOLLO TYRES
9	SPCL	24	EAZYLEARN	39	ELGI
10	IBM	25	SPERIDIAN	40	ROBOSOFT
11	ORACLE	26	MUSigma	41	BOSCH
12	MRF	27	MINDTREE	42	INDIAN ARMY
13	ARICENT	28	SAP LABS	43	ICICI
14	SIB	29	SYNTHITE		
15	CTS	30	ACCENTURE		

Community Orientation

The Institute and the students have the practice of organising community orientation programmes through various student cells/clubs on,

- Global Peace
- Anti-ragging
- Anti-drugs
- Road safety
- Blood donation
- Stem cell donation, etc

In addition to this, one of the faculty, Dr. Udayakumar J. is doing a CERD sponsored project on 'The Recharge Modelling of Groundwater in the Meteorological Stations in Kerala' in the Climate Change Scenario.

Recently college has formulated a Cell specifically oriented in this direction titled "Integrated Community Service Centre" (ICSC). Recently, this cell has undertaken two important community projects.

- Renovating the common parks in and around Kollam town under the prestigious programme of the Central Government (AMRITH) to be implemented by Kollam Municipal Corporation.
- To adopt a village "Munrothuruth", a remote island in Kollam district which is facing multiple issues of climate change. A dedicated technical team is formed to formulate technical and scientific solutions to the real life problems the community (of around 6000 people) is facing there.

1.3.5 Citing a few examples enumerate on the extent of use of the feedback from stakeholders in enriching the curriculum?

Through course committees, advisory meetings, course exit survey, programme exit survey and alumni feedback surveys, the students present their feedback on the curriculum. Faculty consolidate the feedback at workshops for curriculum development. These workshops are organized before the syllabus revision of the University. The Programme coordinator collects the views of industry, Alumni and the professional societies. All these data are presented in the syllabus revision committee meetings of the Board of Studies of the University by the faculty member, who is representing the college in BoS.

New PG programmes like Computer Integrated Manufacturing and new electives like Sustainable Engineering, Digital Image Processing, Pattern Recognition, Nano Technology, Renewable Energy, CAD, CAM, etc are some of the examples, which have been introduced/included in the curriculum as a result of this process.

1.3.6 How does the institution monitor and evaluate the quality of its enrichment programmes?

The Institution monitors and evaluates the quality of its enrichment programmes through,

- Feedback collected through the course committee meetings from the students.
- Feedback collected through DAC (Department Academic Committee) and DQAC (Department Internal Quality Assurance Cell) from the faculty.

- Feedback collected from stakeholders through stakeholders meeting, Alumni, Employer & Industry by Programme coordinators of individual departments.
- Action committee of the college reviews all the views collected from these sources and critically evaluates the results and placement statistics. Corrective actions and measures are also enforced by this committee.

1.4 Feedback System

1.4.1 What are the contributions of the institution in the design and development of the curriculum prepared by the University?

- Some senior faculty who are members of the BoS and Faculty of Engineering and Technology (FET) actively contribute in developing the curriculum of the University. The college forwards the suggestions to the University through the members of these academic bodies of University.
- The institute takes part in curriculum development process by appropriate analysis of feedback given by the various stakeholders from time to time.
- The department level meetings are held to take suggestions from the faculty for modifying the curriculum.
- Finally these suggestions are forwarded to the University through the members for restructuring the curriculum

1.4.2 Is there a formal mechanism to obtain feedback from students and stakeholders on Curriculum? If 'yes', how is it communicated to the University and made use internally for curriculum enrichment and introducing changes/new programmes?

Yes, the institution encourages the practice of obtaining feedback from various stakeholders such as students, alumni, faculty from other institutes, parents and eminent personality from Industry and Government organisations.

The class committee meetings that are held periodically provide a platform for the students to discuss academic and non-academic issues. Parent-teacher meetings are held periodically. Their suggestions are incorporated in improving the curriculum.

The alumni surveys and employer surveys are conducted to give constructive suggestions in improving the curriculum. The valuable suggestions from industrial personnel during meetings/industrial visits, in improving the curriculum needs to match with the needs of the industry are duly communicated to the University. The institute also collects feedback from the recruiters on the performance of the students. This enables the institution to understand what industry expects from the students and act accordingly.

The college is often visited by academicians all over India and also from abroad. Their views on the curriculum are obtained and efforts are made to incorporate the same. The institution takes part in the curriculum development process through appropriate analysis of feedback given by the various stake holders from time to time and makes suggestions for modifying curriculum. All the suggestions from various stakeholders are communicated to the University through syllabus committee members, BoS meetings or during syllabus revision.

1.4.3 How many new programmes/courses were introduced by the institution during the last four years? What was the rationale for introducing new courses/programmes?

The institution strongly believes in reinventing itself based on the needs of society, without compromising on the basic vision and mission of the college. In this context, the college has introduced the Post Graduate courses listed in Table 1.4.1. There was a great demand for the introduction of these new programmes into the curriculum based on the feedback from alumni surveys and employer surveys.

Table 1.4.1 New Programmes introduced in the last four years.

No	Academic Year	Course Introduced	Department	Sanctioned Intake
1	2012-2013	M.Tech Course in Communication System	Electronics & Communication Engineering	18
2	2012-2013	M.Tech Course in Computer Science & Engineering	Computer Science & Engineering	18
3	2016 - 17	M.Tech Course in Power System	Electrical & Electronics Engineering	18

CRITERION II: TEACHING – LEARNING AND EVALUATION

2.1 Student Enrollment and Profile

2.1.1 How does the college ensure publicity and transparency in the admission process?

The institute has seven undergraduate (UG) programmes in Engineering, one UG Programme in Architecture, seven postgraduate (PG) Programmes in Engineering, one Master of Computer Applications (MCA) Programme and two Ph.D. programmes. The admission process is as per the norms fixed by the regulatory bodies of the State and the Central Governments. In addition to the compliance to the regulations, the student profile shows that our institution is one of the most sought after institute by the top ranking students who qualify the admission procedure. This includes students from different geographical area, socio-economic, cultural and educational backgrounds. A few seats are reserved for students from Union Territories, other states and foreign countries as per the National Integration Policy and foreign policy of the Government of India. A fixed percentage of seats is set aside as Management Quota as per the Government orders on this subject. The below mentioned methods

are employed to ensure publicity and transparency in the admission process.

a. Prospectus:

- The Prospectus issued by the Commissioner of Entrance Examination (CEE), Government of Kerala, gives the details of the courses available in the college and the intake in each category for the programmes in Engineering and Architecture. The details of the courses and student intake are mentioned in the website of the CEE, Government of Kerala.
- The prospectus for PG admission (M. Tech. in Engineering) is notified by the Director of Technical Education, Government of Kerala, in their website and admissions are done based on this.
- The prospectus for admission to MCA programme in AICTE approved institutions is notified by the Director of Technical Education, Government of Kerala, in their website. Admission is done by LBS Centre for Science and Technology, Thiruvananthapuram.
- Admission to the Ph.D. programme to the institute is done as per the norms mentioned in the prospectus of the affiliating University.
- Admission to the Ph.D. programme under Quality Improvement Program (QIP) is done as per the norms issued by the QIP Nodal Centre, specified by AICTE.
- Admission to seats for UG and PG programmes under Management Quota (15% of the sanctioned intake) is done by the TKM College Trust from the applications submitted by eligible candidates, who are included in the Kerala Engineering Agricultural Medical (KEAM) Entrance Exam rank list published by the CEE, Government of Kerala.

b. Institutional Website:

The website of the college (www.tkmce.ac.in) provides details about the various courses offered, eligibility conditions for admission to the various programmes, the infrastructural facilities available, details of the placement status and training provided to the students, value addition, details about various departments, faculty, co-curricular activities and special features of the college. Details of the activities conducted and achievements by the students are also displayed in the website.

c. Advertisement in Regional and National newspapers

The CEE, Government of Kerala advertises in the leading regional newspapers about various courses offered and number of seats available in various categories for UG programmes. The admission prospectus for PG and Ph.D. programmes including QIP are published in all the leading regional and national newspapers.

The admission process is made transparent to the public through the website of CEE and newspapers by publishing all updated data. The admission is done through the Centralized Allotment Process (CAP).

2.1.2 Explain in details the criteria adopted and the process of admission (Ex (i) Merit (ii) Common admission test conducted by state agency and national agencies (iii) combination of merit and entrance test or merit, entrance test and interview (iv) any other) to various programmes.

The criteria regarding the intake for B.Tech and B.Arch programmes are as follows:

1. Government Quota (85% of sanctioned intake)
 - (a) The intake of students for the B.Tech programmes is based on the rank list prepared by the CEE, appointed by the Government of Kerala. The rank list is published considering the results of the KEAM and marks of the Higher Secondary Examination in 1:1 proportion. Based on the options c regarding institution and programme exercised by the eligible candidates, the CEE allocates students to the institution, following various reservation norms constituted by the Government of Kerala.
 - (b) The intake of students for the B.Arch programme is based on the rank list prepared by the CEE, considering the results of National Aptitude Test in Architecture (NATA) and marks of the Higher Secondary Examination. Based on the options regarding institution and programme exercised by the eligible candidates, the CEE allocates students to the institution, following various reservation norms constituted by the Government of Kerala.
 - (c) The intake of students for PG programmes in engineering and MCA are also done through the single window system of the Centralized Allotment Process under Directorate of Technical Education (DTE), as per Government norms.
2. Management Quota (15% of the sanctioned intake) :
Selection to this category is done by the TKM College Trust from among the applications submitted by candidates, declared eligible for admission by the Commissioner of Entrance Examinations, Government of Kerala.

3. Government of India Quota:
Number of seats for this category is prescribed by the CEE, Kerala and allotment is done by the Director of Technical Education, Government of Kerala. This category includes students from Andaman and Nicobar Islands, Lakshadweep, etc.
4. Other seats include 15% over and above the sanctioned intake of students:
 - i. Children of Indian workers in Gulf countries
 - ii. People of Indian origin
 - iii. Foreign students

Selection to this category of seats is done by the TKM College Trust from among the applications submitted by eligible candidates.

Eligibility Conditions for the various programmes are as follows:

- (a) The minimum eligibility for B.Tech programme in the merit category is a pass in the Higher Secondary examination (10 + 2 level) with 50 percent marks in Mathematics and overall 50 percent for Physics, Chemistry and Mathematics put together. For the SC/ST category, a pass in the Higher Secondary examination is the criteria.
- (b) For admission to B.Arch programme, candidates must have passed 10+2 or equivalent examination from a recognised Board, with Mathematics as a subject of study by securing an aggregate marks of 50% or 10+3 Diploma (any stream) recognised by Central/State Government with 50% aggregate marks; or, International Baccalaureate Diploma, after 10 years of schooling, with not less than 50% marks in aggregate and with Mathematics as compulsory subject of examination. In addition to this, only those candidates who score 40% marks in NATA will be considered for admission to B.Arch Programme.
- (c) For the above mentioned programmes, for the students from SC/ST community, a pass in the qualifying examination is the minimum requirement.
- (d) For the M.Tech programmes (Government Aided), the eligibility is a B.Tech degree in the respective branch. Candidates with a valid GATE score are eligible for scholarship. For the M.Tech (Self-financing) programmes, admission to 50% of the seats is based on merit from the rank list prepared by Director of Technical Education (DTE) as per Government norms. In the remaining 50% seats. Candidates are admitted under management quota from among eligible candidates.
- (e) For the MCA programme, the minimum qualification is as per the University norms. The minimum requirement is a pass with 50% marks for merit category in the 3 year degree course with Mathematics/Statistics/Computer Science/Computer Application/ Engineering and Technology as main or subsidiary or core subject after passing (10+2) examination and 45% marks for SEBC and Physically Handicapped category. For SC/ST candidates a minimum pass is required. Reservation norms specified by the Government are strictly followed. Admission to the merit seats is through a Centralized

Allotment Process done by a Government agency, namely Director, LBS Centre for Science and Technology Thiruvananthapuram.

- (f) Admission to the Ph.D. programme is as per the specified norms of the regulatory bodies.

2.1.3 Give the minimum and maximum percentage of marks for admission at entry level for each of the programme offered by the college and provide a comparison with other colleges or affiliating University within the city/district.

The candidates who have a specified minimum percentage of marks are only eligible to apply for the courses. Based on a competitive examination and qualifying marks, a rank list is prepared. Admission is based on the rank list, prepared after considering the marks scored in the qualifying exam and entrance test with equal weightage. The rank details of B.Tech and B.Arch Programme is listed in the Table 2.1.1 below.

Table 2.1.1 Rank Details of Admission to B.Tech and B.Arch Programme (State Merit)

No	Programme	H.R.	L.R	H.R.	L.R	H.R.	L.R	H.R.	L.R
		2013-14		2014-15		2015-16		2016-17	
1	Civil Engineering	1164	5044	1441	3730	847	4919	1811	3275
2	Mechanical Engineering	376	2351	602	1263	493	3141	357	1532
3	Production Engineering	4758	6765	3210	6552	2253	7369	3574	7266
4	Electrical & Electronics Engineering	1340	4697	1219	3289	1182	4818	942	4585
5	Electronics & Communication Engineering	677	3559	859	4031	944	4773	917	5049
6	Computer Science and Engineering	1114	6273	865	4355	678	2871	665	2138
7	Chemical Engineering	662	5640	847	4636	1530	5976	1672	6172
8	Architecture	43	1671	51	1696	43	1980	45	111

*H.R – Highest Rank, *L.R – Lowest Rank

Comparison of State Merit category admission rank of B Tech course with nearby colleges is listed in the Table 2.1.2 below:

List of colleges selected for comparison:

- 1 Younus College of Engineering, Kollam (YCE)
- 2 Sree Buddha College of Engineering, Pattoor (SBC)
- 3 Baselios Mathew II College of Engineering, Shasthamcottah (BMC)

- 4 College of Engineering, Karunagappally (KNP)
- 5 College of Engineering, Perumon (PRN)
- 6 College of Engineering, Adoor (ADR)

Table 2.1.2 Last Rank Admitted in for B.Tech Programme in nearby colleges (State Merit)

2011	CE	ME	EEE	ECE	CSE
TKM	4,258	1,361	2,451	1,296	3,668
YCE	14,810	17,172	37,567	38,158	53,427
SBC	18,996	19,715	39,592	21,938	46,965
BMC	25,686	24,193	56,320	44,346	56,259
KNP	*	*	16,431	12,511	19,777
PRN	*	9,751	9,576	19,023	14,597
ADR	*	4,777	12,026	8,757	13,517
2012	CE	ME	EEE	ECE	CSE
TKM	5,061	1,283	2,749	1,574	4,030
YCE	15,876	22,865	54,320	59,555	58,475
SBC	18,943	20,579	27,530	22,523	33,216
BMC	35,103	39,184	59,063	56,506	60,514
KNP	*	*	20,900	16,703	22,119
PRN	*	7,852	11,438	11,475	15,381
ADR	*	7,112	13,220	10,104	13,967
2013	CE	ME	EEE	ECE	CSE
TKM	5,044	2,351	4,697	3,559	6,273
YCE	31,124	24,377	52,152	58,118	57,347
SBC	20,329	21,535	55,713	34,518	55,613
BMC	30,686	34,056	56,591	57,354	57,813
KNP	*	*	16,630	17,320	23,002
PRN	*	8,094	12,502	13,774	17,039
ADR	*	7,591	12,526	12,263	14,647
2014	CE	ME	EEE	ECE	CSE
TKM	3,730	1,263	3,289	4,031	4,355
YCE	30,387	37,498	57,047	56,959	55,184
SBC	23,569	26,770	55,551	54,084	41,984
BMC	33,243	35,967	56,072	56,581	56,149
KNP	*	*	19,789	20,555	28,750
PRN	*	9,250	12,624	17,933	22,778
ADR	*	7,624	12,754	14,178	15,718
2015	CE	ME	EEE	ECE	CSE
TKM	4,919	3,141	4,818	4,773	2,871
YCE	54,958	52,629	53,450	53,908	54,187
SBC	25,422	40,126	52,120	30,567	54,943
BMC	53,592	43,841	51,175	54,809	54,344
KNP	*	*	22,293	51,877	42,166
PRN	*	12,053	14,186	41,829	23,544
ADR	*	8,435	21,427	35,958	23,929

2016	CE	ME	EEE	ECE	CSE
TKM	3275	1532	4585	5049	2,138
YCE	53895	54129	52863	54347	52165
SBC	27363	38707	55706	35320	55867
BMC	53512	43,890	43318	46964	53666
KNP	*	*	28307	50709	29886
PRN	*	10059	13227	25582	17509
ADR	*	9880	20813	25004	17819

* The programme does not exist.

List of colleges selected for comparison of last rank admission details in merit category for the B.Arch Programme

- TKM College of Engineering, Kollam. (TKM)
- College of Engineering, Thiruvananthapuram. (TVE)
- Government Engineering College, Thrissur. (TCR)
- Nizar Rahim and Mark School of Architecture, Kollam. (NMR)
- TKM School of Architecture, Kollam. (TER)
- Mangalam School of Architecture, Kottayam. (MLR)

Table 2.1.3 Last Rank details for Students admitted to B Arch Programme (State Merit)

Year	TKM	TVE	TCR	NMR	TER	MLR
2011	95	46	91	#	#	#
2012	121	55	136	#	#	#
2013	81	33	111	#	#	#
2014	177	50	180	1457	1121	1407
2015	163	34	156	1231	612	1031
2016	111	55	159	1129	506	1224

The institution was not started.

A comparison of the data in the above table shows that TKMCE is highly preferred by the top ranking students who qualify the admission procedure.

2.1.4 Is there a mechanism in the institution to review the admission process and student profiles annually? If yes what is the outcome of such an effort and how has it contributed to the improvement of the process?

The institute follows the stipulated regulations issued by the Government of Kerala which are mentioned in the admission prospectus. The seats are allotted to the students to various programmes through Centralized Admission Process, by the Controller of Entrance Examinations, Government of Kerala.

Every year after the admission process, details of student ranks are consolidated and reviewed in the HOD meeting. Any remedial actions required to be taken in respective departments are recommended.

2.1.5 Reflecting on the strategies adopted to increase/improve access for the following categories of students, enumerate how the admission policy of the institution and its student profiles demonstrate / reflect the National commitment to diversity and inclusion.

- * **SC / ST**
- * **OBC**
- * **Women**
- * **Differently abled**
- * **Economically weaker sections**
- * **Minority community**
- * **Any other**

The reservation system as per the norms of the State and Central Governments is strictly followed for intake. A fixed percentage of seats are allotted to each of the above mentioned categories as notified in the admission prospectus of CEE on merit basis. The percentage of seats allotted to each of the above categories in the B.Tech programmes is defined in the prospectus. Excluding the seats allotted to special categories (Government of India Quota, differently abled and Management Quota) the seats are allotted in the following ratio:

- 60% seats for merit category
- 8% seats for SC category
- 2% seats for ST category
- 30% seats for SEBC category

Three percentage of the seats are reserved for differently abled students. The reservation of seats and admission to special category and Government of India quota are done as per the defined rules of the Central and the State Governments concerned.

The percentage of seats allotted to MCA programme is as specified in the prospectus. Excluding the 15% seats allotted to Management Quota, remaining 85% state quota seats are allotted in the following ratio:

- 50% seats for merit category
- 10% seats for economically weak forward community student category
- 30% seats for SEBC category ,which is distributed within the category as per norms
- 8% seats for SC category
- 2% seats for ST category

Any other category:

This includes:

- Children of Indian workers in Gulf countries
- People of Indian origin
- Foreign students

Foreign students from countries like Nepal, Bhutan, Tanzania, etc., are admitted as per norms and regulations of AICTE/Government of India. This distribution is applicable for all UG and PG programmes.

2.1.6 Provide the following details for various programmes offered by the institution during the last four years and comment on the trends i.e., reasons for increase/decrease and actions initiated for improvement.

Table 2.1.4 Trend of Admission in UG and PG Programme for last four years

No.	Level	Programme	Sanctioned intake	Admitted	Sanctioned intake	Admitted	Sanctioned intake	Admitted	Sanctioned intake	Admitted
			2013-14		2014-15		2015-16		2016-17	
1	UG	Civil	120	139	120	140	120	135	120	138
2	UG	Mechanical	120	142	120	139	120	144	120	137
3	UG	Electrical & Electronics	100	117	100	129	120	132	110	132
4	UG	Electronics & Communication	60	67	60	70	120	129	110	127
5	UG	Chemical	60	69	60	73	60	69	60	67
6	UG	Computer Science	50	55	50	66	60	67	60	68
7	UG	Production	30	35	60	67	60	64	60	67
8	UG	Architecture	80	75	80	100	80	91	80	80
9	PG	M.Tech (Structural Engineering & Construction Management)	18	18	18	18	18	18	18	18
10	PG	M.Tech (Industrial Refrigeration & Cryogenic Engineering)	18	18	18	18	18	17	18	15
11	PG	M.Tech (Communication Systems)	18	18	18	18	18	18	18	18
12	PG	M.Tech (Computer Science and Engineering)	18	18	18	18	18	18	18	18
13	PG	MCA	30	28	30	29	30	27	30	36
14	PG	M.Tech (Industrial Instrumentation)	18	18	24	24	24	24	24	3

		and Control) (SF)								
15	PG	M.Tech (Computer Integrated Manufacturing) (SF)	18	18	18	18	18	10	18	8
16	PG	M.Tech (Power System) (SF)	-	-	-	-	-	-	18	14

- course not started

The increase in the number of admitted students as per the Table 2.1.4 shows that the trend of admission for various years is on a rise. Since the AICTE has permitted 15% seats over and above the sanctioned intake for categories such as foreign students/PIO, the total number of students admitted will be more than the sanctioned intake.

2.2 Catering to Student Diversity

2.2.1 How does the institution cater to the needs of differently-abled students and ensure adherence to government policies in this regard?

The institution fully abides to the Government policies, rules and regulations to cater to the needs of the differently-abled students.

- Seats are reserved and offered according to the Government policies at the time of admission to various programmes.
- All measures are taken to ensure that the easily accessible ground floor class rooms and other facilities are available to such students. Lab sessions are specially arranged for these students at their convenience.
- For the students having vision or functional disability, the institution provides extra time and scribe (supporting person) for examination, based on the regulations laid down by the University.
- Special classes, counseling sessions etc., are arranged to the needful students as a part of academic support.
- The facilities such as ramp, wheel chairs and specially designed toilets are also provided for these students.

2.2.2 Does the institution assess the students' need in terms of knowledge and skills before the commencement of the programme? If 'yes', give details on the process.

The institution conducts an assessment test to evaluate the knowledge and skills of the students in fundamental subjects such as mathematics, physics etc. prior to the commencement of the programme. This assessment helps to identify deficiencies in

the basic knowledge of the students and remedial measures are taken to address the problem.

Academic profile and personal information of the students are made available in the advisory files. Based on these details, students who need special attention are identified by their respective staff advisors. Lateral entry students who are admitted to the programme along with the second year students are assessed on their basic knowledge in mathematics.

2.2.3 What are the strategies drawn and deployed by the institution to bridge the knowledge gap of the enrolled students to enable them to cope with the programme of their choice? (Bridge/Remedial/Add-on/Enrichment Courses, etc.)

To enable students to cope-up with the programme of their choice, orientation programmes are conducted before the commencement of the programme. They are made aware of the curriculum, syllabus, pre-requisites and rules and regulations of the University. They are also exposed to various facilities in the laboratories in the department. The teachers usually spend a few classes for recapitulation of major concepts in the subjects that the students have studied in school to bridge the gap, if any. Bridge courses are generally conducted for mathematics, basic sciences, programming languages etc. for the incoming students from different backgrounds. For example, bridge courses in C and C++ are conducted for students who are unfamiliar with programming languages.

- Remedial courses for various subjects are given to the needful students that will eventually improve their academic performance.
- Enrichment courses like personality development programmes, soft-skill training and various technical workshops are conducted for the benefit of the students.
- Invited lectures, technical festivals, seminars and conferences are conducted periodically in the institute to help students get acquainted with the rapidly changing technological advancements.
- Students are motivated to take various add-on courses like Coursera, NPTEL etc.

2.2.4 How does the college sensitize its staff and students on issues such as gender, inclusion, environment etc.?

- The institution ensures that there is no discrimination on the basis of gender. The Student Affairs Committee and Student Grievance Cell has been instrumental in addressing the complaints and suggestions put forth by the students of the college.

- The Women Cell in the institution takes initiative in conducting events on women empowerment, women rights etc. The cell is empowered to deal with any matter relating to female staff members and students.
- An Internal Complaints Committee has been setup in the institution to deal with prevention, prohibition and redressal of sexual harassment against women at workplace.
- The institution gives special care in including all classes of faculty in various committees at the institution level, which further strengthens the relationship among members of the work force.
- The activities of NSS, Bhoomithra sena, STEPS, etc., make students aware of and involved in issues related to society and environment. Various programmes are regularly organized in the campus in this aspect. Apart from this, 'Introduction to Sustainable Engineering' is a compulsory course for first year students to instill the need to come up with more sustainable technologies.

2.2.5 How does the institution identify and respond to special educational/learning needs of advanced learners?

The performance of students in class tests and participation in activities such as class room discussions, class room seminars, class committee meetings etc., reflect his/her learning capabilities. The institution follows a streamlined evaluation system that helps categorize students based on their ability to learn. Advanced learners are identified and constantly motivated to strive towards higher goals. Such students are encouraged to take a step further. Teachers ensure that such students are:

- Given challenging assignments that increase their intellectual capacity.
- Attending guidance classes for competitive examinations like GATE, CAT etc. arranged by the institution.
- Making use of QEEE, NPTEL programmes.
- Involved in research projects to inculcate research orientation and practical awareness.
- Participating in group discussions, technical quizzes and science exhibitions to help enhance analytical thinking and problem solving abilities and to gain firsthand experience in modeling and design.
- Publishing/presenting their work in reputed Journals/Conferences collaboratively and participating in national and international symposiums.
- Attend in-plant training to gain experience in solving real world engineering problem.

2.2.6 How does the institute collect, analyze and use the data and information on the academic performance (through the programme duration) of the students at risk of drop out (students from the disadvantaged sections of society, physically challenged, slow learners, economically weaker sections etc.)?

The institute maintains an efficient advisory system wherein one advisor is assigned to keep track of the performance of around 30 students. The advisors identify and monitor continuously, the students who may be academically under-performing, economically weak, or the ones with personal struggles, so as to support them in making learning more fruitful.

In addition to the advisory data, each advisor maintains documents containing information pertaining to attendance, subject/classroom/lab involvement, performance in class test, assignments etc. Assistance is provided by the institution to students in the form of special coaching, remedial classes, scholarships, financial aid, simplified learning material and personal counselling. Reports on all student assessments are sent to the parents and they are directed to meet senior advisors/HoD in person ,if the performance of their ward is poor.

2.3 Teaching-Learning Process

2.3.1 How does the college plan and organize the teaching, learning and evaluation schedules? (Academic calendar, teaching plan, evaluation blue print, etc.)

The college follows a specific teaching-learning process and evaluation schedule. The institute follows an academic calendar for scheduling the events and a course plan to structure the course delivery.

Academic calendar

At the beginning of each semester, the academic calendar prepared by the Dean will be presented in the HoD meeting. The approved draft will be discussed further in the departmental meetings and presented in the Department Academic Committee (DAC)/faculty meeting. The approved academic calendar is then published in the college website along with a schedule of internal assessment for each department. The institute develops the academic calendar in line with the calendar published by the University.

Course plan

At the beginning of every semester, each faculty member will prepare a course plan for the subject. This course plan includes the schedule, course objectives and expected course outcomes, the method of content delivery, information on tutorials, assignments, tests etc. The course plan will be submitted to the Department Academic Committee and circulated to the students after approval.

Evaluation

The Institute follows the evaluation methods prescribed by the University (which is explained in criteria 2.5) following a specified schedule. Two internal exams, one assignment per module and a few tutorial sessions are conducted every semester for each course. In addition to the evaluation methods given by the University, Course Outcomes (COs) are evaluated based on specified rubrics once in a semester. These evaluation results contribute to the attainment of Programme Outcomes (POs). This is coordinated by the respective PO coordinators of each department.

2.3.2 How does IQAC contribute to improve the teaching–learning process?

The college has a central Internal Quality Assurance Cell (IQAC) which coordinates the activities of DQACs of each department in monitoring and ensuring the quality of teaching-learning process. The cell is entrusted with objectives like (i) Development and application of quality benchmarks/parameters for the various academic and administrative activities of the institution (ii) Arrangement for Faculty evaluation from students, parents and other stakeholders on quality-related institutional processes (iii) Facilitate the creation of a learner-centric environment conducive for quality education and faculty maturation to adopt the required knowledge and technology for participatory teaching and learning process (iv) Contribute to the preparations for reviews and academic audits conducted by Universities/the AICTE (v) Organize workshops, seminars on quality related themes and promotion of quality circles and its documentation (vi) Identify, nurture and distribute examples of good practice (vii) Review the effectiveness of the academic quality assurance systems and modifying as necessary etc. IQAC ensures the quality of course delivery, the quality of question papers of internal assessment (assignments, internal tests, etc.) and the conduct of lab sessions.

Action Plan for IQAC for achieving the objectives

- IQAC monitors academic activities according to the academic calendar
- Student feedback reports are reviewed by the DQAC and is monitored by the IQAC
- Results are analysed by IQAC to check whether benchmarks are met and proposes corrective measures

This helps to maintain a consistency in the quality of academic activities in the institute.

2.3.3 How is learning made more student-centric? Give details on the support structures and systems available for teachers to develop skills like interactive learning, collaborative learning and independent learning among the students?

Opportunities for interactive learning is provided to students through tutorials, lab sessions etc. In the curriculum, most of the theory subjects have tutorial hours during which tutorial questions are given. More faculty members are assigned for the tutorial hours. The tutorial questions are solved by the students by interacting with the faculty and peers. In the labs, students are divided into groups and an interactive learning process is encouraged. Further, more student-centric learning strategies such as peer instruction, flip class learning, online discussion forums and group quizzes are also practiced in the institute. Student projects provide best opportunities for collaborative as well as independent learning. The individual contribution, leadership skills and team efforts are evaluated during project evaluations. To support independent and collaborative learning, institute conducts technical competitions, professional body activities, inter collegiate technical symposium, paper presentations, innovative design competitions etc. Students are also encouraged to participate in such competitions organized by other reputed institutes like NITs, IITs etc. In order to make the teaching-learning process more student-centric, all the class rooms are made

smart by providing audio-visual and internet facilities. Pedagogical trainings are provided to the faculty members regularly, within and outside the institute, in order to expose them to student-centric learning strategies.

2.3.4 How does the institution nurture critical thinking, creativity and scientific temper among the students to transform them into life-long learners and innovators?

The college gives high importance in nurturing critical thinking, creativity and scientific temper in the students. For this aspect, the college organizes intercollegiate technical symposium every year and encourages the students to participate in technical events like paper presentations, innovative design competitions etc. In addition to that, student chapters of IEEE, ISTE, IE, CSI etc. also organize many programs which contribute to these aspects of learning. Students are encouraged to participate in technical competitions elsewhere that may inculcate a scientific temper and vigor that will inspire them to be lifelong learners.

College provides facilities like Innovation and Entrepreneur Development Cell (IEDC) to nurture the creative thinking abilities of the students and to help them to become entrepreneurs. Students of various branches can utilize these platforms for the development of their innovative ideas. An IPR cell is also working in this campus to provide guidance to students to obtain intellectual property right for their inventions.

‘Life-long learning’ is an aspect that is given great importance by this institute and is kept as a graduate attribute that the college demands from the graduates. This aspect is carefully verified for its attainment through well defined rubrics.

2.3.5 What are the technologies and facilities available and used by the faculty for effective teaching? Eg: Virtual laboratories, e-learning resources from National Programme on Technology Enhanced Learning (NPTEL) and National Mission on Education through Information and Communication Technology (NME-ICT), open educational resources, mobile education, etc.

The faculty of this institute utilizes multiple teaching aids to make course delivery more effective. The faculty utilizes all the potentials of smart classrooms for making the teaching process effective. Most of the departments use virtual lab to enhance the teaching learning process. Collection of lectures from NPTEL is stored in hard drives and made available for faculty and students. A digital library is also functioning in the Central Library. A QEEE section is functioning well in the campus and many lectures on contents within and beyond syllabus are exposed to students through this program. Apart from various expert lectures made available to students through QEEE, faculty provides information about various possible sources of knowledge to the students. The college subscribes many e-journals of ASME, ASCE, IEEE, Elsevier, Springer, etc., which can be accessed to students from campus network. The Central Library and computer labs are also used by students to refer these e-journals.

2.3.6 How are the students and faculty exposed to advanced level of knowledge and skills (blended learning, expert lectures, seminars, workshops etc.)?

In order to expose students and faculty to the advancements in technology, the college encourages them to participate in expert lectures, conferences and other technical events. Collaborative projects and MoUs with R&D organizations like ISRO, Department of Atomic Energy and Foreign Universities help the students and faculty

to acquire advanced level of knowledge and skills. Lectures by industrial experts and scientists from reputed research organizations are arranged for the students to update their knowledge about the advances in technology. Many of our renowned alumni also interact with the students in such events.

Several Faculty Development Programs (FDPs) are organized by different departments in latest technological areas of research to throw light on the recent advancements. Most of such events are funded by AICTE, ISTE, TEQIP etc. Faculty attends FDPs, Conferences, workshops etc. in institutions inside and outside Kerala. Faculty members also participate in international conferences convened abroad. For the last three years, many faculty members and technical staff have attended FDPs, training programmes, international conferences etc., under TEQIP scheme, within and outside the country.

2.3.7 Detail (process and the number of students benefitted) on the academic, personal and psycho-social support and guidance services (professional counseling/mentoring/academic advise) provided to students?

The college has appointed a professional counsellor on a regular basis to provide personal support students. Separate Counseling Room is provided for the same. Counseling classes are given to students individually and in groups, to propagate the need to elude from the use of drugs and unhealthy habits. Motivational classes are arranged in association with advisory team for boosting the confidence level of the weaker students. Awareness programmes on rules and regulations of the institute, anti-ragging measures taken by the institute, policies of anti-ragging cell are conducted for the first year students. Group Counseling on public speaking, stress management, CV preparations, effective communication skills are also conducted regularly. Around 200 students have benefited from the counseling process.

The college has a very powerful and effective mentoring system (advisory system) to support activities of the students. The advisory system consists of a senior advisor and an advisor for approximately 30 students of each batch. The system helps the students in their academic and personal matters and provides all support in case of any grievance. The advisors maintain good rapport with parents to support such activities. In addition to that, Student Grievance Cell and a Women's Grievance Cell are functioning effectively in the campus to address grievances of students.

2.3.8 Provide details of innovative teaching approaches/methods adopted by the faculty during the last four years? What are the efforts made by the institution to encourage the faculty to adopt new and innovative approaches and the impact of such innovative practices on student learning?

The teachers are exposed to innovative and student-centric teaching methods through various courses such as Mission 10X, Pedagogical Training at IITs etc. Teachers are encouraged to implement such active learning methods in their classes. Professors practice active knowledge imparting techniques such as peer instruction, group quiz, flip-class learning, wiki-based learning, online discussions, etc.

The innovative teaching methods create special interest among the students and they appreciate such methods in teaching-learning process. This helps them to thoroughly understand the concepts. Availability of smart class rooms makes new teaching methods possible.

2.3.9 How are library resources used to augment the teaching-learning process?

To augment the teaching-learning process; assignments, projects, seminars, etc. are given to students which necessitate the use of the resources in the college Central Library. The library in the college has a large collection of technical and co-curricular related books. Students can borrow books from library from the common section and can refer books in reference section.

The college subscribes to e-journals of ASME, ASCE, IEEE, Elsevier, Springer etc. which can be accessed by students from Digital library. A reference section and digital library having collection of technical books, publications and expert lectures from NPTEL stored in hard drives of library are made available for faculty and students. A book bank facility for SC/ST students is also functioning effectively with a very good collection of books. The library facilities are open even after the regular working time of the college.

2.3.10 Does the institution face any challenges in completing the curriculum within the planned time frame and calendar? If “yes”, elaborate on the challenges encountered and the institutional approaches to overcome these.

Yes, as the institution is not an autonomous/ residential institute, some of the normal working days are affected by unexpected regional strikes or government declared holidays. The institution compensates the same by arranging class hours during weekends and beyond the regular working hours.

2.3.11 How does the institute monitor and evaluate the quality of teaching-learning ?

Faculty evaluation by students is conducted twice in a semester; at the middle and end of the semester; through Eazy Campus software. This data is used to evaluate the effectiveness of teaching. This data is monitored by the faculty, HoD and Principal. Feedback is collected from students on various subjects and discussed in Class Committee (CC) meetings, which consist of advisors, faculty handling the subjects and the student representatives. This help to improve the teaching-learning process.

The IQAC/DQAC monitors the quality of course delivery, the quality of question papers of internal assessment (assignments, internal tests, etc.) and the conduct of lab sessions. The cell also ensures whether the topics are delivered as per the course plan for every subject.

To evaluate the learning process, the methods prescribed by the University are followed. In addition to such evaluation methods, Course Outcomes (CO) are also evaluated for every subject. This CO evaluation in turn will help to achieve Programme Outcomes (POs). POs are evaluated based on specified rubrics. This evaluation is coordinated by the respective programme coordinators of each department. Course exit surveys are conducted at the end of a semester to assess the COs which help to make necessary changes in COs of every subject.

Feedback from stakeholders, alumni surveys and employer surveys also help to improve the teaching-learning process.

2.4 Teacher Quality

2.4.1 Provide the following details and elaborate on the strategies adopted by the college in planning and management (recruitment and retention) of its human resource (qualified and competent teachers) to meet the changing requirements of the curriculum

Faculty members are recruited as per the qualifications prescribed by the AICTE, affiliated Universities (Kerala University and KTU) and Government norms. The institute is in constant pursuit of highly qualified and self-motivated faculty. Their knowledge in the subject, proficiency in the English language, skill of teaching etc. are evaluated through a rigorous selection procedure. In the search for qualified faculty, the college first makes advertisement in the local and national newspapers. The interviews are conducted by a panel of experts consisting of two nominees of management, one nominee from Government/Directorate of Technical Education (DTE), one nominee each from University, AICTE, one subject expert, Principal etc. The expert committee prepares a rank list of the selected candidates and the management appoints them. Their appointments are further approved by the University and the DTE.

The faculty retention of the college is more than 95% in all departments, which is very high and is one of the major strengths of the institution. In order to meet the changing requirements of the curriculum, the institution ensures that their faculty members attend various training programmes and workshops for updation of knowledge and skills.

Table 2.4.1 provides the gender specific details of faculty members possessing different level of qualifications and holding the capacity of different cadres.

Table 2.4.1 Faculty distribution in different cadres

Highest Qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Mal	Female	
Principal							
Ph.D.	1						1
Permanent teachers							
Ph.D.	23	13	6	4	8	3	57
M.Tech/M.Arch	3	7	10	12	30	39	101
M.Phil			2	1	2		5
MSc/ MCA/ MFA/ MPE			2	3	2		8
B.Tech/B. Arch					1		1
Temporary teachers							
Ph.D.							
M.Tech/M.Sc		1	1		17	26	45
B. Arch							
TOTAL	27	21	21	20	60	68	218

2.4.2 How does the institution cope with the growing demand/ scarcity of qualified senior faculty to teach new programmes/ modern areas (emerging areas) of study being introduced (Biotechnology, IT, Bioinformatics etc.)? Provide details on the efforts made by the institution in this direction and the outcome during the last three years.

As of now there is no dearth of faculty in the institute. When a new topic/subject is introduced in the curriculum, faculty members are nominated for special training sessions (e.g., for the course “Introduction to Sustainable Engineering”- a course in first semester, training was given to the staff members) equipping them to meet with such challenges. Faculty members are deputed for higher studies like M.Tech/Ph.D. and encouraged to take up research projects. The faculty members who undergo training come forward to offer allied elective courses and projects for UG/PG programmes. They set up new laboratories (example, Nanotechnology Lab, VLSI lab etc) for inculcating the research interest in modern areas of study. During the last three years, a number of faculty development programmes in emerging areas of study were organized by the institute, under the sponsorship of TEQIP II. Many invited lectures are organized in the institution under Institute Industry Interaction Cell and MoUs are signed with many industries/scientific/research organizations. Faculty members are encouraged to visit foreign Universities and research laboratories, which results in collaborative research works. TKM College of Engineering is an approved research centre of the affiliating university. The institution is recognized as a QIP centre by the AICTE since 2012.

2.4.3 Providing details on staff development programmes during the last four years. Elaborate on the strategies adopted by the institution in enhancing the teacher quality.

The details of the staff development programmes along with the strategies adopted by the institution to enhance the quality of teaching are presented below:

- Nomination to staff development programmes

Table 2.4.2 provides the number of faculty members who attended different types of staff development programmes and the number of in-house faculty development programmes conducted by different departments

Table 2.4.2 Details of faculty development programmes

Academic Staff Development Programmes		2013-14	2014-2015	2015-16	2016-2017
No. of faculties who attended FDP (department wise)	CE	125	65	57	88
	ME	70	36	47	28
	EEE	74	12	49	47
	ECE	50	63	50	47
	CSE	41	9	24	41
	CHE	42	7	17	11
	ARCH	4	8	35	28
	MCA	19	14	17	11
No. FDP's	CE	10	1	3	-

conducted (department wise under TEQIP II)	ME	9	-	2	1
	EEE	13	-	2	2
	ECE	9	7	1	4
	CSE	4	3	1	1
	CHE	3	1	1	1
	Others	3	1	1	-
No. of QIP short term course conducted		-	2	2	7
No. of faculties who attended management capacity development programme (under TEQIP II)		21	8	1	2
No. of faculties who Seminars/ Conference/ Workshop (under TEQIP II)		12	26	34	31
No. of faculties who attended pedagogical training (under TEQIP II)		-	11	17	6

- Faculty training programmes are organized by the institution to empower and enable the use of various tools and technology for improved teaching-learning
- Teaching learning methods/approaches
- Orientation programmes arranged for faculty members under 5 years teaching experience.
- Faculty development programmes organized for Soft Skill Development and Tools for Quality Education, Research Methodology, Intellectual Property Rights etc.
- Conducting training programmes/workshops for handling new curriculum

Whenever a new subject/lab course is introduced in the curriculum, workshops are organized in the institute. For example, a workshop for preparing and finalizing laboratory manual for Computer Aided Design and Drafting Lab was organized by department of Civil Engineering. A workshop on 'Interfacing with Personal Computers' was conducted in Department of Computer Science and Engineering for all the faculty members in the University when a new lab on Computer Hardware Interfacing was introduced in the curriculum.

Under KTU also, faculty members play a key role in fixing of curriculum, scheme and syllabus. Institute acts as nodal centre for cluster meetings/workshops, fixation of curriculum, scheme and syllabus of PG curriculum. Faculty members were deputed for training programmes on the newly introduced courses such as Introduction to Sustainable Engineering, Design and Engineering etc.

➤ Organizing Conferences/Workshops for Knowledge Management

International/National conferences, workshops, seminars, invited talks, faculty development programmes etc., are organized by all departments of the institution for content/knowledge management.

➤ Access to online journals, books & NPTEL Lectures

The college has a large collection of books in all disciplines. The library subscribes to a number of journals related to different disciplines from the leading publishers like Elsevier, IEEE. The library makes arrangements to compile the online teaching/learning resources (e.g., NPTEL, MOOC). The information on online resources /study/teaching materials is properly communicated among the faculty members and students. The Wi-Fi connectivity and full-fledged internet facility of the college helps to use such facilities effectively.

➤ Training for Assessment of COs and POs

Faculty members are given training for direct assessment as well as indirect assessment of courses (e.g., Rubrics, Course Assessment Index), by the senior faculty members.

➤ Training Programmes on Cross cutting issues

Training programmes on environmental aspects like water and waste water treatment and sustainable practices are organized by the institute.

➤ Access to Audio Visual Aids / Multimedia for content delivery

The college has smart class room facility in all departments. The faculty members are encouraged to use such facilities for their teaching.

➤ Teaching learning material development, selection and use

Before the commencement of classes, faculty members are directed to prepare a course plan, compile resources and tools for assessment.

c) Percentage of faculty as Resource Persons

- Invited as resource persons in Workshops/Seminars/Conferences organized by external professional agencies-15%.
- Participated in external Workshops/Seminars/Conferences recognized by national/international professional bodies- 80%.
- Presented papers in workshops/Seminars/Conferences conducted or recognized by professional agencies-60%.

2.4.4 What policies/systems are in place to recharge teachers? (e.g. providing research grants, study leave, support for research and academic publications teaching experience in other national institutions and specialized programmes industrial engagement etc.)

- The institute promotes faculty members acquiring higher qualification (like ME/M. Tech/M. Arch or Ph.D.) under the Quality Improvement Programme of AICTE
- Institute allows study leave for faculty members pursuing Ph.D.
- The institute encourages the faculty members to attend short term training programmes for updating their knowledge in the respective subjects.
- The institute encourages the faculty members to attend pedagogical training for updating/enhancing the teaching skills.
- The institute has the facility of TEQIP-Phase II, under which faculty members are encouraged to organize workshops/conferences/short term training programmes and to attend conferences and present papers at national and international level.
- The institute provides financial assistance to the faculty members presenting papers in national/international conferences.
- The faculty is encouraged to take up research projects by acquiring funding from Government/Scientific organizations.
- The faculty is encouraged to undertake research projects in collaboration with national/international research institutions.

2.4.5 Give the number of faculty who received awards/recognition at the state, national and international level for excellence in teaching during the last four years. Enunciate how the institutional culture and environment contributed to such performance/achievement of the faculty.

In 2015 the institute has been recognized as ‘Outstanding Engineering Institute South’ by the Anand Basar Patrika (ABP). This achievement is mainly due to the dedicated contributions by the faculty members and the quality of teaching.

- In the year 2014, former Principal of the institute ,Dr.M Amarunnishad received the prestigious “Best Principal Performance Award” instituted by the ‘Global Achievers Foundation, New Delhi’ for recognizing outstanding achievements of personalities of different spheres of life across India.
- Dr. A.S. Dili of Dept. of Architecture received award from the Indian Institute of Architects Kerala State Award for Excellence in Architecture (Commendation) and National Professional Excellency Award in 2014.
- Prof. Sunitha Beevi of Dept. of Electrical and Electronics Engineering received IEEE Member & Geographic Achievement Award as Outstanding IEEE Branch Councilor-2014 among Asia-Pacific Countries.

- Dr. S. Suresh of Dept. of Civil Engineering is selected as ‘Engineering Professor of the Year 2015’ by the Kerala Engineering Graduates Association of Northeast America (KEAN).
- The research publication of Dr. S Ayoob (*h-index* 11) in the ‘International Journal of Critical Reviews in Environmental Science and Technology’ was credited with record number citations (more than 370) in Scopus and is still adjudged as one of the best cited papers of the journal. His three other publications have more than fifty citations in Scopus.

2.4.6 Has the institution introduced evaluation of teachers by the students and external Peers? If yes, how is the evaluation used for improving the quality of the teaching-learning process?

The institute has an effective system for evaluation of teachers by students. The process is done through the online campus management software, named ‘Eazy Campus’. The students are directed to perform the evaluation process twice in a semester- one immediately after the first internal exam and the second one at the end of the semester. Based on the index obtained and comments of students, the respective HoDs and academic coordinator assess the evaluation index of individual faculty and give them suggestions for improvement. The report compiled by HoD is passed to the Internal Quality Assurance Cell (IQAC) of the institute. They come up with policies/suggestions for the improve the quality of teaching. Remedial measures are taken and faculty members are advised and nominated for trainings on pedagogy and trainings on recent advancements in various courses.

2.5 Evaluation Process and Reforms

2.5.1 How does the institution ensure that the stakeholders of the institution especially students and faculty are aware of the evaluation processes?

The institute performs its student evaluation process based on the regulations suggested by the concerned Universities. The stake holders are made aware of these processes through the following measures:

- Mentioned in handbook of the Institute
- Published in Institute website (www.tkmce.ac.in)
- Highlighted during orientation programmes at the beginning of course.
- Reiterated during class committee meetings and PTA meetings
- Evaluation process is continuously discussed during departmental meetings of faculty members
- Marks of internal assessments are generated based on the entries done in the online campus management software, Eazy Campus. The entries and the internal assessment marks can be viewed by faculty members, students and parents.

2.5.2 What are the major evaluation reforms of the University that the institution has adopted and what are the reforms initiated by the institution on its own?

TKM College of Engineering has been affiliated with the University of Kerala since 1958. The engineering batch running from 2015 has been affiliated to KTU. The institute follows the evaluation procedures prescribed by the respective Universities.

The Kerala University introduces reforms every 5 years. In 2008, Kerala University introduced in its scheme, the Cumulative Grade Point Average (CGPA) method of evaluation, which the university has been following in the 2013 scheme as well.

The institute has made its own reforms in the evaluation process in the college level as well. The institute is presently following outcome based evaluation of various Graduate Attributes. For this, the institute has specified POs based on the 12 Graduate Attributes suggested by National Board of Accreditation (NBA). The individual departments in the institute utilize unique set of rubrics also for assessing individual POs.

2.5.3 How does the institution ensure effective implementation of the evaluation reforms of the University and those initiated by the institution on its own?

TKM College of Engineering plays a major role in the evaluation procedure based on the reforms of the University examinations. This institution is a centre for valuation of the examinations of Kerala University. The institution participates meticulously in the process in a systematic manner, as prescribed by the University.

The faculty members of this institution also serve multiple roles in the University as Members of Board of Studies, Faculty of Engineering and Technology, Syllabus/Curriculum/Question paper setters, Chairman of Examinations, Chief Examiners, Additional Examiners, Examiners in-Charge of scrutiny/revaluation of answer books etc. The service of our faculty in the above mentioned capacities helps the University to bring reforms in curriculum and the evaluation procedures periodically.

When the affiliation changed to KTU, the institution incorporated infrastructural reforms, in order to meet the requirements prescribed by the University.

The institute further attempts reform in its internal evaluation process by verifying the attainment of specified graduate attributes in our students through a specific procedure, from the academic session of 2015-16. A rubrics training workshop was conducted to enlighten the faculty members about the rubrics-based evaluation and formulation of rubrics for the assessment of the Programme outcomes of all departments. The Department Academic Coordinators are entrusted to collect and consolidate the results from the faculty members.

2.5.4 Provide details on the formative and summative assessment approaches adopted to measure student achievement. Cite a few examples which have positively impacted the system.

During the programme, for every course, the students are subjected to various Continuous Assessment (CA) procedures, namely, assignments, quizzes, tutorials and class seminars that are evaluated by the faculty-in-charge. Two internal examinations (Series Tests) are also conducted in a semester. Total marks awarded for internal assessment is 50, and the division of marks is given in Table 2.5.1. At the end of

every semester, students are further evaluated by the University Exam (summative assessment) for maximum marks of 100. The total marks scored for a subject is taken as 150, which is the sum of CA marks (50) and University Exam marks (100). The CA marks for the individual subjects shall be computed by giving weightage to the parameters as shown in Table 2.5.1

Table 2.5-1 Contribution of various parameters for CA marks calculation

Subject	Attendance	Tests (Series Tests)	Assignments/ Class Work
Theory	20%	50%	30%
Practical	20%	40%	40%

Many examples can be cited to underline the fact that the system followed by the institute in the evaluation process has positively contributed to the improvement of student performance.

- Students are given the advantage of appearing for remedial classes and makeup tests to compensate for any shortage of marks.
- The Continuous Assessment (CA) procedure enlightens the faculty-in-charge about the strengths and weaknesses of the class. This further helps the faculty to suitably modify the course delivery measures.
- The students are evaluated for various graduate attributes as well. This helps to identify the shortcomings in students and gives them an opportunity to improve their skills through various activities.
- From the academic session of 2015-16, the institute has adopted assessment of POs through a set of rubrics, developed for all the POs. This is a formative assessment procedure and is utilized to evaluate the indices of achievement of POs.

2.5.5 Detail on the significant improvements made in ensuring rigor and transparency in the internal assessment during the last four years and weightages assigned for the overall development of students (weightage for behavioral aspects, independent learning, communication skills etc)

To ensure rigor and transparency in the internal assessment process, all the entries that contribute to the marks for CA are systematically and periodically published in Eazy Campus. The daily attendance in all courses is also entered by the respective faculty members. These can be viewed by the staff, students, parents and administrative faculty. Sessional mark review committee reviews the sessional marks of students at the department and college levels. Any discrepancy can be brought to the notice of the faculty-in-charge and the authorities of the institution so that the problem can be rectified. At present the curriculum provides weightage for courses such as Language Lab, life-skills, etc., to improve soft-skills. Students are also encouraged to take up online courses, which enhance their independent learning capacity.

To evaluate the overall development of students, every department has developed rubrics that can measure the attainment of various attributes like design skills, communication skills, life-long learning etc. This is further explained in Section 2.5.6

2.5.6 What are the graduates attributes specified by the college/ affiliating university? How does the college ensure the attainment of these by the students?

All programmes of the institute follows Outcome Based Education (OBE). Every programme has defined a list of programme outcomes which are developed based on the Graduate Attributes specified by the National Board of Accreditation (NBA), in consultation with its stakeholders. For example: The graduate attributes specified for the UG Programmes by NBA are:

1. Engineering Knowledge
2. Problem Analysis
3. Design & Development of Solutions
4. Investigation of Complex Problem
5. Modern Tools Usage
6. Engineer and Society
7. Environment & Sustainability
8. Ethics
9. Individual and Team work
10. Communication
11. Project Management and Finance
12. Lifelong Learning

Based on the above mentioned graduate attributes, the B.Tech Civil Engineering Programme is targeted at developing the following abilities amongst students:

- PO1. Apply knowledge of mathematics, science and engineering for the solution of Civil Engineering problems.
- PO2. Identify, formulate and analyse Civil Engineering problems.
- PO3. Design Civil Engineering systems, components or process to meet desired needs within realistic constraints.
- PO4. Conduct investigations of complex Civil Engineering problems using research methods, design and conduct experiments, analyse data and arrive at valid conclusions.
- PO5. Use modern engineering tools and software necessary for solution of Civil engineering problems.
- PO6. Assess societal, health, safety and legal issues relevant to professional engineering practice.
- PO7. Understand the impact of engineering solutions in a global, economic, environmental and societal context and understand the need for sustainable development.

- PO8. Acquire and demonstrate ethical principles required for professional practice.
- PO9. Function effectively as an individual and as a member in diverse teams.
- PO10. Communicate effectively in verbal, written and visual forms.
- PO11. Understand and demonstrate engineering and management principles required for construction projects.
- PO12. Adapt to the technological advancements through life-long learning.

To ensure the attainment of these programme outcomes the following assessment procedure is adopted. Every course has a defined course outcomes which is mapped with the program outcomes. Programmes have also developed unique set of rubrics for assessing individual POs. Graduate exit surveys serves as an indirect method of assessment. These methods together measure the attainment of the expected Program Outcomes.

2.5.7 What are the mechanisms for redressal of grievances with reference to evaluation both at the college and University level?

The institute has a grievance redressal mechanism that functions for the students and faculty of the institute. A decentralized functioning is being effectively practiced in the campus for grievance redressal. Majority of the grievances are taken care of by the respective department. To take care of major grievances, a central grievances redressal committee is also constituted which consists of members nominated by the Principal. The composition of the Central Grievance Redressal Committees is given below:

Convener: A Senior Professor

Members: Four faculty members including minimum one lady faculty.

Complaints regarding University valuation can be directly represented by the students to the University. Errors, if any, in University question papers are also represented and forwarded to the University through a proper channel. After evaluation, students get an opportunity to apply for scrutiny and revaluation of their answer scripts in the case of specific grievance.

Any grievance regarding the conduct and evaluation of internal tests can be represented in the institute at various levels. The discrepancies related with internal evaluation procedures, question papers not pertaining to syllabus, providing insufficient data, etc. are adequately addressed by the faculty-in-charge and HoD. Complaints and grievance regarding evaluation of examinations at the institute level are duly addressed by the individual departments. If the students further have any grievances, they can approach the Central Grievance Redressal Committee.

2.6 Student Performance and Learning Outcomes

2.6.1 Does the college have clearly stated learning outcomes? If “yes” give details on how the students and staff are made aware of these?

Yes, the College has clearly framed the learning outcomes for its individual departments based on the graduate attributes prescribed by the NBA, which are known as Program Outcomes (POs).

The information about POs are made aware to the staff and students through displays in laboratories, lab records and lab manuals, class room notice boards and college website. In addition, these are frequently discussed in department meetings and class committee meetings.

2.6.2 Enumerate on how the institution monitors and communicates the progress and performance of students through the duration of the course/programme? Provide an analysis of the students results /achievements (programme/ course-wise for last four years) and explain the differences if any and patterns of achievement across the programmes/courses offered.

Progress report indicating performance in internal assessment tests, assignments and attendance of all students are uploaded in Eazy Campus. The students and parents can get the details by visiting the website making use of their respective user IDs. Progress reports including the University marks are sent to parents. Parents of underperforming students are informed by the faculty advisor over phone and they are directed to meet the HoD and the faculty handling classes. Class-wise PTA meetings are held during each semester and steps to correct and improve performance of the students are thoroughly discussed during the interaction among faculty advisor, HoD, other staff members, parents and students. The same will be implemented and progress is monitored.

Table 2.6.1 University pass percentage for the past four years

No	Departments	2012-13 (%)	2013-14 (%)	2014-15 (%)	2015-16 (%)
UG Programmes					
1	Civil Engineering	74.50	72.22	80.15	83.66
2	Mechanical Engineering	75.00	76.38	72.00	62
3	Electrical & Electronics Engineering	78.99	74.79	72.22	68.64
4	Electronics & Communication Engineering	79.60	74.80	74.20	71.6
5	Computer Science and Engineering	76.30	74.10	81.50	68.3
6	Chemical Engineering	70.27	64.38	72.58	57.75
7	Production Engineering	66.67	58.82	56.00	72
8	Architecture	56.75	65.00	91.10	81.57

PG Programmes					
9	Civil (Structural Engineering and Construction Management)	88.24	88.89	100	83.33
10	Mechanical (Industrial Refrigeration & Cryogenic Engineering)	100	100	100	88.24
11	Computer Science and Engineering	-	81.20	82.40	82.4
12	MCA	85.71	80.00	86.20	72

The pass percentage in the Table 2.6.1 shows that the results in UG programmes are almost consistent, with slight increase in the last year. The PG courses show consistent increase in pass percentage during the last four years.

2.6.3 How are the teaching, learning and assessment strategies of the institution structured to facilitate the achievement of the intended learning outcomes?

In the beginning of the semester, the course plan is prepared by each faculty, which is handed over to the students. In the course plan, detailed schedule and mode of delivery of different modules of the course is given. Different modern delivery methods such as web based learning, use of ICT (Information and Communication Technologies) etc., are adopted along with conventional practices to deliver course content.

In addition to the content in the syllabus, industrial/field visits, invited talks, workshops, trainings etc, are arranged for the students. The students are exposed to new learning strategies and are directed to submit reports/conduct seminars based on the above.

The POs are measured through the assessment strategies prescribed by the University, which are given in detail in section 2.5.4. In addition to that, the institute evaluates the learning outcomes (POs) based on specified rubrics prepared for each programme.

The teaching-learning assessment strategies are monitored by Department Academic Committee and PO coordinators. PO coordinators will identify specific courses in each programme for evaluation of POs and the evaluation for its attainment is monitored.

2.6.4 What are the measures/initiatives taken up by the institution to enhance the social and economic relevance (quality jobs, entrepreneurship, innovation and research aptitude) of the courses offered?

- Students are exposed to field problems like dam safety, waste management issues etc., through field visits, thereby encouraging them to contribute professionally in core engineering sectors.
- The Institute has an Innovation and Entrepreneurship Development Cell (IEDC), which conducts entrepreneurship awareness programmes regularly and encourages the students to launch innovative ideas. Students arrange seminars, workshops, invited technical talks etc., under the aegis of IEDC.

- The different student chapters such as Bhoomitrasena Club, NSS, ISTE, IEEE, STEPS etc., support students to identify the social issues and suggest solutions.
- Students are encouraged to take up projects with social and economic relevance by utilizing the knowledge acquired through the courses offered in the programmes.
- To bring out the innovative ideas and research aptitude, students are encouraged to conduct and participate in technical symposiums every year. They are sponsored to participate, present and publish research papers in international/ national conferences and journals.
- Students are encouraged to attend internships/industrial visits to make them aware of the industrial practices and thereby enhance their employability.
- The Career Guidance and Placement Unit (CGPU) identify firms relevant to the courses and train students according to their requirement. The students thus get exposed to the relevance of their courses and thus help to grab quality jobs.

2.6.5 How does the institution collect and analyze data on student learning outcomes and use it for planning and overcoming barriers of learning?

The institute has a defined system to collect data on student learning outcomes. The learning outcomes are assessed through internal test, assignments, tutorial etc. Faculty-in-Charge of each course collects and keeps data for the learning outcomes. Moreover, the teachers will be assessing the attainment of learning outcomes through defined set of rubrics. The collected data will be analysed by the faculty and the DAC and proper modifications are suggested if required.

Each faculty compute the Course Assessment Index (CAI) of the respective subjects based on internal assessments and the University results. For each course, the result analysis is carried out and compiled by DQAC. Based on result analysis, the department identifies weak students and remedial coaching is given to them to overcome the barriers of learning. The evaluation of teachers by students is also done for every course through EazyCampus to identify flaws in teaching. This is also analysed by the DQAC and steps are taken to improve course content delivery. Course plans are periodically revised by the respective faculty to overcome the barriers in learning.

2.6.6 How does the institution monitor and ensure the achievement of learning outcomes?

Each course in the programme has defined learning outcomes which are termed as course outcomes. The attainment of the course outcomes are assessed directly and indirectly. The direct assessment involves tools such as series tests, class assignments etc. and indirect assessment is through the course exit survey. The course attainment index (CAI) evaluated by the faculty member is scrutinized by the respective subject groups and the CAI value along with comments are forwarded to the DQAC. Based on this DQAC gives suggestions for improvement, if any, to the concerned faculty member.

Head of the Department, Department Academic Coordinator and Senior Advisor of respective semesters strictly monitor the content delivery of each course and ensure that it is done as per the course plan submitted by the faculty member. Class

committee meetings convened by the HoD addresses the issues faced by the teachers and students. Corrective measures such as extra classes for difficult topics, remedial teaching for weak students, improvement of teacher/student behavior etc., are taken.

2.6.7 Does the institution and individual teachers use assessment/evaluation outcomes as an indicator for evaluating student performance, achievement of learning objectives and planning? If ‘yes’ provide details on the process and cite a few examples.

Yes. Based on the continuous assessment and University examination results, course indices are calculated for all courses in every department. The indices are reflections of student performance. During the 2015-16 academic sessions, a system of rubrics was developed to assess the POs in every department. The results are used to identify the student performance. Based on this information (index values), corrective measures such as extra classes for difficult topics, remedial teaching for weak students etc., are undertaken.

Few examples to this aspect are cited below:

- The overall index obtained for a course on Computer Programming was lower for Mechanical Engineering students. To improve the students’ performance, they were given special classes and lab sessions. This helped to provide better understanding of the course.
- Based on the index and feedback obtained from the students, a group tutoring methods were implemented in the campus for the first year students for the course Calculus. In that session, a group of Professors from Mathematics Department attended to the requirements of students individually in a session. Students felt very comfortable about the contents in the syllabus after the session.
- Various departments in the institute follow such practices based on the course index and feedback to improve the performance of students in respective courses.

CRITERION III: RESEARCH, CONSULTANCY AND EXTENSION

3.1 Promotion of Research

3.1.1 Does the institution have recognized research centre/s of the affiliating University or any other agency/organization?

Yes, the institution has recognized research centres of the affiliating University. The Department of Mechanical Engineering and Civil Engineering of this institute are recognized as research centres of the University of Kerala. These are also recognized by MHRD as QIP centres for Ph.D programmes. The Department of Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering and Chemical Engineering are under the process of obtaining recognition as research centres after successfully completing the inspection process. Faculty of these departments guide research scholars for Ph.D programmes. At present, there are 21 faculty members who are approved as research guides in the institution. In addition to this, faculty from all departments have applied for guideship under the Kerala Technological University, which is under processing.

3.1.2 Does the Institution have a research committee to monitor and address the issues of research? If so, what is its composition? Mention a few recommendations made by the committee for implementation and their impact.

The institution has a research council to monitor and address issues related to research. The Principal of the institution is the Chairman and the Dean (Research) is the Vice Chairman of the Research Council. IQAC coordinator, coordinator for international research collaborations and faculty members representing different departments as members constitute the committee. The council organizes different programmes to motivate the faculty to enrol for Ph.D programmes in their areas of interest. They timely assist and provide guidance to research scholars in obtaining research projects and collect the information of potential funding agencies to obtain financial assistance.

The council identifies potential research areas and recommends to organize research talks and to present the works of research scholars of this institution. The committee also recommends the research scholars and faculty pursuing Ph.D to participate and present papers in seminars, conferences and faculty development programmes. The activities of research council help to motivate faculty, especially youngsters, to undertake research activities and enhance the quality of their research work. The list of members of the research council is given in Table 3.1.1

Table 3.1.1 Constitution of Research Council for the current year

No.	Name of faculty	Department	Capacity
1	Principal		Convener
2	Dr. R. Sajeeb	CE	Dean, Research: Coordinator
3	Dr. T.A. Shahul Hameed	EC	Dean, Student affairs, Member
4	Dr. P.N. Dileep	ME	IQAC Coordinator, Member
5	Dr. K.E. Reby Roy	ME	Coordinator, International Research collaborations, Member
6	Dr. C. Ushadevi Amma	EEE	Member
7	Dr. O. Sheeba	EC	Member
8	Dr. Shafi K. A	ME	Member
9	Dr. A. Sadiq	ME	Member
10	Prof. Syed Mohammed Fahd	ME	Member
11	Dr. Baiju V.	ME	Member
12	Dr. Manu J Pillai	CS	Member
13	Prof. Faizal	CH	Member
14	Dr. Annie John	Architecture	Member
15	Dr. Nadeera Beevi	MCA	Member
16	Dr. Mathew Varkey	Mathematics	Member
17	Dr. Shemim S. S.	Physics	Member
18	Dr. Chitra Devi	Chemistry	Member
19	Prof. L. Arun	EEE	Member

3.1.3 What are the measures taken by the institution to facilitate smooth progress and implementation of research schemes/projects?

The institution takes extreme care to support and promote research activities of faculty. The following are a few of the efforts by the institution system to support research.

Autonomy to the Principal Investigator

The institution offers maximum support and freedom to the principal investigator to proceed the work according to their own idea and need.

Timely availability and release of resources

The institute provides timely information and guidance to apply for the project and necessary resources are supplied through office.

Adequate infrastructure and human resources

The institute provides necessary infrastructure facility for implementing the project. Special well equipped rooms are given for major research projects such as ISRO projects. In certain cases the institute facilitates human resource to assist the project if the fund is allotted for assistance.

Time off, reduced teaching load, special leave etc. to teachers

The concerned department extends the support to the faculty by providing consideration in teaching load as internal arrangement without affecting the students and special leave of up to six months is recommended with the co-operation of other faculty members.

Support in terms of technology and information needs

The institution provides computer system and Wi-Fi internet facility to all the departments to support research. The most modern developments and advances in technology are provided to the concerned research faculty through the online journals and digital library. The researcher can access the information from their own work place at any time. Also, the relevant information needed for the research community is conveyed in the right time to the faculty through the research council of the institution.

Facilitate timely auditing and submission of utilization certificate to the funding authorities

The institute always gives priority to timely submission of utilization certificate yearly. The administrative office of the college provides full support for preparation of utilization certificate of the project and entrusts special auditor for auditing the accounts of project in time.

The institution has completed ample number of research projects funded by AICTE and other agencies successfully. Moreover, there are many ongoing projects and research projects funded by industries and research organisations in various departments.

3.1.4 What are the efforts made by the institution in developing scientific temper and research culture and aptitude among students?

To develop scientific temper, research culture and aptitude among students, the institution organizes intercollegiate technical symposia every year in association with college union. Students are encouraged to participate in technical events like paper presentations, innovative design competitions etc. In addition to these, student chapters of professional bodies such as ISTE, IEEE, etc. also organize many programmes to develop scientific temper and research culture. The students are motivated to actively participate and present papers in technical symposia and conferences held in other institutions too.

The Research Council gives award for the best innovative UG project to promote research culture of UG students. The council also organises poster presentation of final year projects to disseminate the innovations and research contributions of students to the whole student community.

The faculty extends their support and guidance to the students in their technical endeavours. The students also get chance to expose themselves to research activities by taking part in the research works of the faculty and department research projects. Many students have received awards for best papers in international and national conferences. The information and achievements regarding students' research are reported in news letter of the department periodically. Thus scientific temper and research culture are nurtured among the students.

3.1.5 Give details of the faculty involvement in active research (Guiding student research, leading Research Projects, engaged in individual/collaborative research activity, etc.)

The details of the faculty involvement in guiding research works, leading Individual/Collaborative research projects and pursuing Ph.D research work are provided in the Tables 3.1.2, 3.1.3 and 3.1.4 respectively.

Table 3.1.2 Details of faculty involved in guidance of Ph. D works (2012-2017)

No	Name of the Guide	Department	Name of Scholar	Status
1	Dr. Lalu Mangal	CE	Dr. Saraswathy B Dr. Seema K. Nayar Dr. Jeenu G Chinsu Mereena Joy Sajida Razaque Biju V.	Awarded Awarded Awarded Ongoing Ongoing Ongoing
2	Dr. Anitha Joseph	CE	Chinsu Mereena Joy Sajida Razaque Sulphia Beevi U Priya Grace Ittyipe	Ongoing Ongoing Ongoing Ongoing
3	Dr. Reebu Zachariah Koshy	CE	Mohammed Asim Gouri Mohan L Priya Grace Ittyipe	Ongoing Ongoing Ongoing
4	Dr. Ayoob S	CE	Dr. K. Swarnalatha Lali al Neera K. Shibu	Awarded Ongoing Ongoing
5	Dr. Udayakumar J	CE	Rejani G.S Ravikumar K	Ongoing Ongoing
6	Dr. M Nazeer	CE	Shahas S Anup J Divya B Mathew	Ongoing Ongoing Ongoing
7	Dr. Sajeeb R	CE	Sneha M Varghese	Ongoing
8	Dr. M. Joseprakash	ME	T.S. Krishnakumar Sheeba A Leena R Arun M (QIP) Sanu Krishna S (QIP)	Ongoing Ongoing Ongoing Ongoing Ongoing
9	Dr. K.K. Abdul Rasheed	ME	Dr. K.A. Shafi Dr. N. K. Mohammed Sajid Mathew Skaria Gouri Mohan Ashfak A Vinodkumar V	Awarded Awarded Awarded Ongoing Submitted Ongoing
10	Dr. S. Jose	ME	Sudheer A Muhammed Zakkeer	Ongoing Ongoing
11	Dr. P.N. Dileep	ME	V. Hashim	Ongoing

			Resmi S.L Shamnadh M Sreekumar R. Pillai	Ongoing Ongoing Ongoing
12	Dr. K.A. Shafi	ME	Mathew Skaria Arun Jacob Sijkumar (QIP)	Awarded Ongoing Ongoing
13	Dr. K. E. Reby Roy	ME	K. Madhusoodhanan Pillai Arun Jacob Jesna Mohammed Abhiroop V. M Gijoy S Bindu S. S	Submitted Ongoing Ongoing Ongoing Ongoing
14	Dr. Rijo Jacob Thomas	ME	Manu M. John	Ongoing
15	Dr. T. P Imthias Ahamed	EEE	Arun S Saritha J Johnson Y	Ongoing Ongoing Ongoing
16	Dr. K. Gopakumar	ECE	Suni S.S Devi V.R Soumya Babu H Farsana F.J Aswathy Devi T Jisu Elsa Jacob Aswathy G P	Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing
17	Dr. Unni C	ECE	Lija Arun Jaya Ranjini Sajitha Rani Preethi Elizabeth Anju S	Ongoing Ongoing Ongoing Ongoing Ongoing
18	Dr. Sheeba O	ECE	Bino N Nissa Surling S. N Soumya V. S Rekha Ajitha S. S Sajeena A Biju P	Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing
19	Dr. T. A. Shahul Hameed	ECE	Ayoob Khan T. E Anu Assis Sajin S. S Ushakumari K. L Kala L George Joseph	Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing
20	Dr. D. Chithrapras ad	CSE	Dr. Nadeera Beevi Subu Surendran Abid Hussian Saju George Dhoulath Beegum	Awarded Ongoing Ongoing Ongoing Ongoing

21	Dr. K. B. Radhakrishnan	CHE	Suji S.K. Ullas Krishnan J.N Ann M. George Venugopal R	Ongoing Ongoing Ongoing Ongoing
22	Dr. Dili A.S	ARCH	Nisar S. A	Ongoing
23	Dr. Mathew Varkey	MATHS	Rajesh Kumar T John K. Rajan Susan Ray Joseph Sunoj V. S Mariamma Varghese Sylvia Antony Rani Rajeevan Sreena Shylaja Lekha	Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing Ongoing
24	Dr. K. Geetha	MATHS	Riyas A Teetu Babu	Ongoing Ongoing
25	Dr. B. Premlet	Physics	Shaila K. A Sreeja Prasanth Jolly John	Ongoing Ongoing Ongoing

Table 3.1.3 Leading individual/collaborative research projects during 2012-17

No.	Name	Dept	Title of the project	Funding agency	Amount (Lakhs)	Status
1	Dr. Anitha Joseph	CE	Comparative Study of Effectiveness of Breakwater & Groynes	AICTE	8.5	Completed in March 2012
2	Dr. Benny Joseph	CE	Development of Green Concrete	Kerala State Council for Science & Technology	8.613	Completed
3	Dr. Benny Joseph	CE	Utilization of ETP Solid Waste	KMML (2014-15)	3	Completed
4	Dr. Reebu Zachariah Koshy	CE	Modelling & Study of the Characteristics of Motorized Two-Wheeler Traffic on Urban Roads	AICTE	7.1	Completed
5	Dr. Anitha Joseph	CE	Three Legged Articulated Type Supporting Structure for Off-Shore Wind Energy Turbine	AICTE	10	Ongoing

6	Dr. K.A. Shafi, Prof. Mathew Skaria, Dr. Rijo Jacob Thomas	ME	Development of Emissivity Measurement Setup and Studies of Emissivity of Cryo Components Down to 77K	Department of Atomic Energy, Government of India	22.33	Ongoing
7	Dr. M. Joseprakash, Dr.K.E.Reby Roy , Prof. Krishna kumar T.S.	ME	Analysis of Film Cooling in a Semi Cryogenic Rocket Engine Including the Effect of Chemical Reaction	LPSC, ISRO	9.65	Completed
8	Dr. M. Jose Prakash, Dr. Reby Roy	ME	CFD Analysis of Regenerative Coolant Passages in a Semi-Cryogenic Rocket Engine	LPSC, ISRO	9.48	Completed
9	Dr. P.N. Dileep, Prof. Hashim V.	ME	Computational Investigation of Strut Patterns On the Mechanical Behaviour of Coronary Stents.	AICTE-RPS	10	Ongoing
10	Dr. M. Joseprakash, Prof. Krishna kumar T.S.	ME	Development of Energy Efficient Cooling Systems Using Nano-Fluids	AICTE-RPS	14.5	Completed
11	Dr.T. M. Amarnishad	CSE	Colour Image Compression Based On Block Truncation Coding Using Fuzzy edge Operator and Genetic Algorithm	AICTE-RPS	10	Completed
12	Prof. Rahul Nath.H	CSE	Air Writing - Tracking and processing hand gestures using Doppler Effect and Infra -red Array”	Centre for Engineering Research and Development (CERD) 15.01.2017	1.3	Ongoing

Table 3.1.4 Faculty members engaged in Ph.D research work

Department	Faculty	Area of Research	Registration
Civil Engineering	Prof. Mohammed Asim	Construction Management	2015
	Prof. Sajida	Laterite Interlocking	2014

	Razaque	Blocks	
	Prof. Sulphia Beevi U.	Fibre Reinforced Concrete	2014
	Prof. Adarsh S.	Water Resources Engineering	2012
	Prof. Muhammed Siddik A.	Environmental Geotechnology	2014
	Prof. Chinsu Mereena Joy	Offshore structures	2014
	Prof. Amal Azad	Geotechnical Engineering	2016
	Prof. Kavitha Madhu	Transportation Engineering	2012
	Prof. Ramaswamy K P	Building Technology & Construction Management	2014
	Prof. Rekha Ambi	Structural Engineering	2015
	Prof Vishnu R	Transportation Engineering	2012
Mechanical Engineering	Prof. Ashfak A.	Magneto-Rheological Fluids	2009
	Prof. Sheeba A.	Heat transfer	2012
	Prof. Mohammed Zakkeer M	Quality Management	2009
	Prof. Sudheer A.	Metallurgy	2011
	Prof. Hashim V.	Bio Mechanics	2012
	Prof. Krishnakumar T.S.	Heat Transfer in Nano Fluids	2011
	Prof. Resmi S.L.	Bio Mechanics	2014
	Prof. Leena R.	Electronics Cooling	2012
	Prof. Jesna Mohammed	Cryogenic Engineering	2014
	Prof. Jessin TA	Industrial Engineering	2017
	Prof. Rakesh Pillai	Thermal Engineering	2017
Chemical Engineering	Prof. Femina A.	Separation and Purification of Industrial Effluent	2014
Electrical and Electronics Engineering	Prof. Shyba S.	Robotics and Artificial Intelligence	2013
	Prof. Shanavas T. N.	DC to DC converter	2011
	Prof. Sabeena Beevi K.	Biomedical Engineering	2013
	Prof. Mohammed Shanir P. P	Biomedical Signal Processing	2014
	Prof. Mohammed Mansoor O	Power System Operation Distributed Generation	2015
	Prof. Shaleena	Renewable Energy	2013

	Manafuddin	(solar)	
	Prof. Fathima M Kasim	Biomedical Instrumentation	Pre registration
Electronics and Communications Engineering	Prof. DoulathBeegum J.	Signal Processing	2011
	Prof. Nishanth N.	Security for Wireless Networks	2014
	Prof. Preetha Basu	Signal Processing	2010
	Prof. Abid Hussain M.	Soft Computing	2012
	Prof. Reshna S.	Computer Vision	2013
	Prof. Sajeena A	Computer Vision	2015
	Prof. Shabeer S	Biomedical Image Processing	2012
	Prof. Anu Assis	Organic FET	2014
	Mr. Biju P	Medical Image Processing	2015
Architecture	Prof. Jolly John	Acoustics	2010
	Prof. Nizar S. A.	Climatology	2012
Mathematics	Prof. Rajesh Kumar T. J.	Graph Theory	2013
	Prof. Riyas A.	Algebraic Graph Theory	2010
Computer Science and Engineering	Prof. Ansamma John	Data Mining	2008
	Prof. Dimple A. Shajahan	Computational Geometry	2016
	Prof. Aneesh G Nath	Image Processing	Pre Registration
Master of Computer Applications	Prof. Natheera Beevi M.	Image Processing	2011
	Prof. Fousia M. Shamsudeen	Image Processing	2014

3.1.6 Give details of workshops/ training programmes/ sensitization programmes conducted/organized by the institution with focus on capacity building in terms of research and imbibing research culture among the staff and students.

Large numbers of technical programmes has been conducted in the various departments of the institution during 2011-16. Most of the faculty development programmes were sponsored by AICTE and TEQIP II. Majority of the faculty actively attended the programmes. These programmes improve the quality of the faculty in their fields of research. Also the students of the institution are directed to participate in the technical programme conducted by the department.

Table 3.1.5 Training programmes/workshops organized by the various departments during 2012-17

Programme	Guest/Speaker	Date
CIVIL ENGINEERING		
1	Workshop on GIS & Applications in Civil Engineering Mr. Shimod K. P., Department of Town and Country Planning	25-27, Jul 2013
2	FDP on Total Station and GPS Dr. Satheesh Gopi, Deputy Chief Hydrographer Dr. E. S. M. Suresh, Prof. K. S. A. Dinesh Kumar, NITTTR, Chennai	11-15 Nov 2013
3	FDP on Advances in Hydro-Systems Modelling and Climate Change Impact Assessment Prof. D. Nagesh Kumar, IISc Bangalore Dr. T. I. Eldho, IIT Mumbai	25-29 Nov 2013
4	FDP on Experimental Techniques in Materials & Structures Dr. Nilanjan Saha, Professor, IIT Chennai Dr. N. Gopalakrishnan, Ms. Bharathi Priya, SERC Chennai	23-25 Jan 2014
5	FDP on Waste Management – Issues and Priorities Dr. George K. Varghese, Dr. Mathavkumar, Professor, NIT Kozhikode Dr. G. Madhu, Professor, CUSAT	3-5 Mar 2014
6	FDP on New Frontiers in Geo-Technical Engineering Dr. R. G. Robinson, Dr. G. R. Dodagoudar, IIT Chennai	23-25 June 2014
7	FDP on Innovation in Mass Housing Dr. B. V. V. Reddy, Dr. Monto Mani, IISc Bangalore Padmashree G. Sankar, Mr. T. P. Madhusoodanan, Habitat Tech. Group	8-10 Jan 2015
8	FDP on Emerging Trends in Construction and Maintenance of Structures Dr. Radhakrishna Pillai, Professor, IIT Chennai Dr. K. B. Anand, Professor, Amrita University, Coimbatore Dr. Job Thomas, Professor, CUSAT, Cochin	16-21 Mar 2015
9	FDP on Concrete for Present and Future Dr. Antony Jayasekhar, Professor, Annamalai University. Dr. Jacob Philip, Professor, CUSAT Dr. George Mathew, Professor, CUSAT, Cochin	25-27 Jun 2015

10	FDP on Advanced Techniques for Sustainable Water Resources & Environmental Management	Dr. K. P. Sudheer, Professor, IIT Madras Dr. M. Janga Reddy, IIT Bombay Dr. Raaj Ramsankaran, IIT Bombay	15-02-16 to 20-02-16
11	Recent Advances in Project Planning and Management	Dr. K. C. Iyer, IIT Delhi Mr. E. A. Abdu, VP – Engineering, Skyline Builders. Thiruvananthapuram. Mr. Shabeer A. M., Executive Director, CIAL. Dr. Koshy Varghese, IIT Madras Mr. T. V. Balakrishnan, Harbour Engineering Department, Kerala.	January 30 – February 4, 2017
12	Advances in Concrete Technology with Special Emphasis on Sustainable Development	Dr. Job Thomas, CUSAT Dr. Dhanya B. S., RIT Kottayam. Dr. J. Karthikeyan, NIT Trichy. Dr. S. V. Rajeeva, Retired Professor, NIT Suratkal. Mr. Shyju Nair, Ambuja Cements. Mr. Dan Paul Thomas, Rieco Chemicals.	January 30 – February 4, 2017
13	Sustainable Development & Green Energy Technologies	Dr. Rajan Rawal, CEPT University, Ahmedabad. Dr. Thrivikramji K. P., Director, Programs & Geoinformatics, CED, Thiruvananthapuram. Dr. Hari Kumar, Director, ANERT Dr. Pankaj Kalita, IIT Guwahati. Mr. Jose Thomas P., GM, CIAL. Dr. Sreedhar, Bosch Ltd. Dr. K. Murali, IIT Madras. Dr. L. Ashok Kumar, PSG College of Technology.	13 – 18 February 2017
14	Health Monitoring of Structures	Dr. N. Ganesan, NIT Calicut. Dr. Sajith A. S., NIT Calicut. Dr. V. Srinivas, CSIR-SERC, Chennai.	20 – 25 February 2017

15	Recalibrating the Industry-Institute Space	Dr. Samson Mathew, NIT, Trichy. Mr. Shelly S. Fernandes, Director, Q Crete RMC, Trivandrum. Mr. Jipu Jose James, JLL, Bangalore Mr. S. Madhu Anand, Head Larsen & Toubro Ltd., Chennai Mr. Abdul Rahim, Vizhinjam International Sea Port Ltd.	06 – 11 March 2017
MECHANICAL ENGINEERING			
16	FDP on Computational Methods in Engineering Using MAT laboratory	Dr. Abraham T. Mathew, Professor, NITC , Kozhikode Prof. Aruna, Royal School, Guwahati	19-24 Dec 2013
17	FDP on CFD & Application	Prof. Salih, IIST, Thiruvanthapuram Dr. Anil Lal, Professor, CET, Thiruvanthapuram	19-24 Aug 2013
18	STTP on FEM & Application in Engineering	Dr. K. Prabhakaran Nair, Professor, NITC Dr. G Saravakumar, Professor, IIT Chennai	17- 23 Oct 2013
19	STTP on Micro & Nano Scale Heat Transfer	Prof. P. Muthukumar, IIT-Guwahati Prof. Sarith B. Sathyan, IIT-Chennai Prof. Sameen, IIT-Chennai	16 – 18 Dec 2013
20	FDP on Advances in Nano Technology	Prof. Sarith B. Sathyan , IIT-Chennai Dr. Kuruvila Joseph, IIST Dr. Anand Kumar ,NIIST	23-28 Mar 2015
21	FDP on Recent Trends in Nanotechnology	Dr. T.P.D. Rajan, NIIST Dr. S. Anand Kumar, NIIST Dr. Shijo Thomas, NIT-Kozhikode	28-01 Nov 2013
22	FDP on Research Methodology for Engineers	Prof. U. Radhakrishnan, IIST Dr. B. Premlet, TKMCE	2-4 Dec 2013
23	Invited talk on Geometric Dimensioning and Tolerancing	Dr. M.S. Shunmugam, Professor, IIT Chennai.	4 th Jul 2013
24	Invited talk on Product Development in Industries	Mr. T.D. Kesavaprasad, Intsolvers Technologies Pvt. Ltd., Thiruvanthapuram	5 th Jul 2013
25	Talk on Aircraft System Development Process	Dr. Y. Arun Roy, Business Head Aerospace & Defense, Defiance Technologies Limited, Bangalore	10 th Jul 2013

26	Talk on trends in Advanced Manufacturing	Dr. Khalid Rafi, Post Doctoral Fellow, University of Louisville, USA	13 th Aug 2013
27	Talk on Bio Mechanics	Dr. Jinu Unnithan, Post Doctoral Fellow, University of Boston, USA	15 th Jul 2013
28	Workshop on Industry-Institute interaction programme	Er. Reji Raveendran, Group Manager, CAE Division, Volvo Trucks India Ltd., Bangalore	7 th Oct 2014
29	Invited talk on Recent advances in Space technology	Mr. Baiju, Senior Scientist, LPSC, Thiruvananthapuram	22 nd January 2015
30	Invited talk on Oil & Natural Gas Production in India	Rahul Prabharan, Engineer, ONGC	13 th Jan 2014
31	FDP on combustion theory and computational techniques	Dr. K.S.Bijukumar, ISRO, Trivandrum Thirumaleswaranaik, IISC, Bangalore Dr. Jeen, VSSC, Trivandrum	16-21 Nov 2015
32	Advanced Mechanics of Materials	Prof. Saijal K , GEC, Calicut Dr. N. Sunil Kumar, CUSAT, Cochi	22- 26 June 2015
33	FDP on Industrial Automation and Mechatronics	Prof. N. Ashok kumar, CET, Trivandrum Dr. Jisha VR, Trivandrum	19-23 March 2015
34	Advances in Nano technology	Prof. Sarith B S. IIT, Madras Dr. Praveen Kumar, IUAC, New Delhi Dr. Kuruvila Joseph, IIST, Trivandrum Dr. Anandakumar, NIIST, Trivandrum	23- 28 March 2015
35	FDP on How do I Start my Research	Dr. B. Premlet, Professor , MES Institute Kollam Dr. Achuthsankar S. Nair, SIUCEB Trivandrum	20 – 22 July 2016
36	FDP on Application of Mathematics in Engineering	Dr. S.R. Rajesh, Samsung Heavy Industry, S.Korea Dr. Anandakumar, VSSC, Trivandrum V. Madhusoodanan Pillai, NIT, Calicut R.Sharavana, Anna University	23- 28 Jan 2017
CHEMICAL ENGINEERING			
37	Industrial Lecture on 5 th Paradigm	Dr. Gangan Pratap, Outstanding Scientist, (Former Vice Chancellor, CUSAT) NIIST Thiruvananthapuram	5 Sep 2013

38	Water & Wastewater Management	Dr. P.C. Sabumon, Professor, VIT University, Chennai Dr. Ligy Philip, Professor, IIT Chennai Dr. B.S. Murthy, Professor, IIT Chennai	18–22 Nov 2013
39	Separation Techniques in Process Industries	Mr. Harinath Viswanathan, Manager, Manufacturing Department, BPCL Kochi Refinery, Ernakulam	16-20 Dec 2013)
40	Safety Practices in Laboratory Experiments and Maintenance	Er. K. Bhanu, Consultant Titanium Sponge Unit, KMML, Chavara, Kollam Sri. K.K. Vasu, Principal (Rtd.), Kelappaji College of Agricultural Engineering & Technology	28-29 Nov 2013
41	Workshop on Safety in Static & Mobile Pressure Vessels	Mr. Venugopal Nair, Deputy Chief Controller of Explosives, PESO, Madurai, Tamilnadu	8th Feb 2014
42	Add on Course On “Distributed Control System(DCS) & Programmable Logic Controller (PLC) Overview”	Mr. Sandeep V S, Senior Associate Yokogawa Mr. Naveen Parameswar Senior Associate Yokogawa Mr. Shijith S Shaji Associate Consultant Yokogawa Mr. Binil Jose Associate Consultant Yokogawa	15.02.2016 – 19.02.2016
43	FDP on “Health, Safety and Environmental Management Systems	Mr. Levin G, VSSC, Trivandrum Mr. Ansari, NIIST (CSIR), Trivandrum Dr. Sanakara Narayana Swamy, Professor, NIT Trichy	25.07.16 to 30.07.16
44	Expert talk and interaction on “Job Prospects in Petroleum Sector	Mrs. Shaheena Nizar, Consultant Mr. Aravindh Nair, Process Engineer KNPC	11.08.2016
45	2 day Workshop on “Process Engineering: Skills and Practices”	Mr. Venkatesh.M, DGM, Tata Projects, Hyderabad	6.10.2016- 7.10.2016
ELECTRICAL AND ELECTRONICS ENGINEERING			
46	FDP on Robotics, Mems and Nanotechnology	Dr. Y.U. Khan, Associate Professor, Dept. Of EEE, Aligarh Muslim University, Delhi.	21-25 Oct 2013

47	FDP on Development of Communication Skills, Art of Teaching and Research	Ms. Meliha Selak, Specialist Engineer, BC Hydro, Ontario, Canada.	11-15 Nov 2013
48	FDP on Advanced Digital Signal Processing	Dr. R.M. Vasu IISC, Bangalore. Prof. Suresh Kumar, NIT-Kozhikode	18-22 Nov 2013
49	FDP on Recent Advances in Power Electronics & Industrial Drives	Dr. Rajeevan P. P., IIST, Thiruvananthapuram Dr. Sreedevi V. T, VIT, Chennai Er. Unnikrishnan A. K., Er. Aby Joseph, CDAC, Thiruvananthapuram. Prof. Suresh Kumar, NIT-Kozhikode	16-20 Dec 2013
50	Workshop on PLC & SCADA Training	Ms. Uma S., Development Engineer, VI Micro Systems Pvt. Ltd, Chennai.	6 th Dec 2013
51	Application of Soft Computing Techniques in Power System	Dr. S. Kumaravel, Assistant Professor, Department of EEE,NIT- Kozhikode. Dr. K. Sundereswaran, NIT-Trichy. Dr. Sishaj P. Simon, NIT- Trichy	28 Apr 2014 to 3 May 2014
52	FDP on Power system Operations	Dr. R. M. Shereef, Professor, CET, TVM Dr. M. P. Selvan, Professor, NIT Tiruchirappalli Dr. G. Saravana Ilango, Professor, NIT Tiruchirappalli Dr. Sishaj P Simon, Professor, NIT Tiruchirappalli.	23-11-15 to 28-11-15
53	FDP Contemporary Developments of Optimization Techniques and its application	Dr. K. Satheesh Kumar Dept of Futures Studies, University of Kerala, Kariavattom Dr. Prince A, RIT Kottayam Dr. Vinod Chandra S S, Director, Computer Centre University of Kerala Dr. Sishaj P Simon, NIT, Tiruchirappalli.	18-05-16 to 23-05-16

54	Building more skills for a better life and skills	Dr. Gita Gopal, Former development expert at World Bank and Former advisor to Govt of Kerala on Gender and Social issues. Dr. Ramachandran, Former deputy chief engineer KSEB, consulting applied psychologist, Behavioural Science practitioner and management trainer. Dr Santhosh, Professor, TIM, Kollam	31-05-16 to 04-06-16
55	Simulation and Realisation of Power Systems in Steady State & Transient State	Er. Shaji Peter Kallada, Dy. CE, KSEB Er. Anand S. R, Dy. CE, Load Despatch Center, Kalamassery Er. Biju S. S, Power System Scheduling, KSEB Er. Chaithanya, Technical Expert, PS-CAD, Nayak Power Systems, Mumbai Er. Jnanasekaran, Technical Expert, ETAP Automations, Chennai	05-10-16 to 08-10-16
ELECTRONICS AND COMMUNICATION ENGINEERING			
56	Recent Trends in Electronic Product Design	Dr. Suresh Babu, Principal TKMCE, Kollam Dr. Baiju M.R., Professor, CET, Thiruvananthapuram	20-25 Aug 2012
57	VLSI Design	Dr. Ramasubramanya Komaragiri, Associate Professor, NIT, Kozhikode. Mr. Damodara M.S., Product Manager, CoreEL, Technologies India Pvt.Ltd., Bangalore.	12-16 Jun 2013
58	RF Design Using AWR Design Environment	Dr. Raveendranathan K.C., Principal, LBSITW, Thiruvananthapuram Mr. Dharmendra, AWR System, Bangalore	26 Nov 2013 to 1 Dec 2013
59	Workshop on Nano Electronic Materials	Dr. Ajayaghosh, Scientist, NIIST, Thiruvananthapuram Dr. M.M. Shajumon, IISER, Thiruvananthapuram Dr. S. Jayalekshmi, Professor, CUSAT	25-27 Nov 2013

60	Workshop on Mathematical Tool for Electronics Engineering	Mr. Jathin, Application Engineer, Ansy HFSS, Bangalore	10 th Dec 2013
61	Advanced Communication Systems	Dr. V Unnikrishnan Nair, Former Professor, University of Kerala Mr. Rajan George, DGM, Airport Authority Of India, Thiruvananthapuram	15-25 Jul 13
62	Expert Lecture on Statistical Signal Processing	Dr. Sameer, Associate Professor, NIT-Kozhikode	06 th Jun 2014
63	Expert talk on 5G	Dr. Albert Singh, SDE, BSNL, Nagercoil	15 th Oct 2015
64	Seminar on Wireless Communication	Dr. P. Radhakrishnan, Deputy Director VSSC (Retd.) Mr. Kannan M, JTO RTTC, BSNL, Trivandrum Mrs. Priya Sivakumar, Manager, Broadcasting Business Unit, TATA Elxsi	17/03/15 to 19/03/15
65	Workshop on Simulation of Wireless Networks using NS-2	Prof. Joseph, Auxilius Jude, Professor, Kongu College of Engineering, Erode, T.N. Prof. V. C. Dinesh, Professor, Kongu College of Engineering, Erode, T.N.	21/03/15 to 22/03/15
66	FDP on Computer Vision and Video Analytics	Dr. Madhu S Nair, Assistant Professor, Dept. of Computer Science, University of Kerala. Dr. Asharaf S, Associate Professor, IIIT-MK, Technopark, TVM. Avishek Chatterjee Computer Vision Laboratory Dept of Electrical Engineering Indian Institute of Science Bangalore.	14-12-15 to 19-12-15
67	Biomedical Instrumentation and Image Processing	Dr. Bipin Thomas Varghese, Professor Clinical Oncology, RCC, Trivandrum Dr. B Priestly Shan Principal, Royal College of Engineering, Thrissur. Dr. Arun Anirudhan, Scientist D SCTIMST	15-06-16 to 21-06-16
68	FDP on Recent Trends in Biomedical Signal and Image Processing	Dr. Ajish K Abraham Department of Electronics AIISH Mysore	21-07-16 to 27-07-16

69	Research topics in VLSI devices , circuits and signal processing	Dr. Shakil Rafi Ahamed Associate Professor IIT Kharagpur Dr Nithin V George Asst Professor IIT Ghandinagar	26-09-16 to 30-09-16
COMPUTER SCIENCE AND ENGINEERING			
70	Invited talk on Algorithm Design Techniques	Dr. S.P.Pal, IIT Karaghpur Dr. Pandurangan, IIT Chennai	11-12Nov 2013
71	Workshop on Network on chip	Dr. Madhu Muthyam,IIT Chennai	24-25 Jul 2013
72	Invited Lecture on Research Methodology	Prof. A.R. Rajan , Professor University of Kerala	04-05 Oct 2013
73	Workshop on Computer Hardware Maintenance	Mr. Poulson Mr. Manoj Kumar Accel IT Academy	21-22 Oct 2013
74	Workshop on Algorithm Design Paradigm	Dr. C. Pandu Rangan, IIT Chennai	08-09 Nov 2013
75	FDP on Application Development Program Using Java	Prof. Rajendran Mr. Kishor kumar, (CEO ,OSPYN Technologies, Thiruvananthapuram Mr. Anil Kumar, Mr. Manu Nuzreth, Mr. Siva Subrmanyam	27-29 Nov 2013
76	Workshop on Android Application Development	Mr. Arun Kumar Mr. Santhosh T. Pantech ProEd Pvt. Ltd Chennai	04-06 Dec 2013
77	Invited Lecture on Probabilistic Algoritm	Prof. Rahul C.S. Research Scholar IIT Chennai	17 Dec 2013
78	Invited talk on Integer Factoring and Discrete Logarithm Problems	Dr. Veni Madhavan Professor IISc Bangalore	10 Jun 2014
79	Invited talk on Cyber Hardware Security – Then and Now for Computing	Dr. Tirumala K. Ramesh, Professor Amrita Vishwa Vidyapeetham, Bangalore	19Jun 2014
80	Invited talk on Embedded Systems for Biomedical Applications	Dr. Lakshmi Narasimhan, Professor, Dept. of Computer Science East Carolina University, USA	22 Jun 2014
81	Expert Lecture on Mobile Communication-A Practical Approach	Mr. Biju N. JTO, BSNL, Thiruvananthapuram	Mar 2015
82	Workshop on Python Programming	Mr. Krishna Sharma, Ethical hacker, NIT, Kurukshetra.	19 Sep 2015

83	FDP on Machine Learning and Natural Language processing	Dr.M.R Kaimal ,Chair Person Amrita University ,Dr. S.D Madhu Kumar NIT Calicut	4 th -9 th Jan2016
84	Workshop on Web application development using PHP and HTML	Biyas S, Project Engineer IISER	12-03-16 to 13-03-16
85	FDP on Embedded Systems	Dr.Jagadanand;NIT Calicut Mr.Rajesh;CDAC Trivandrum	30th September to 2nd October,2016
86	Workshop on “Real time object classification”,	Mr.Jishad. PurleyBrook Labs PVT.LTD, Bangalore	21 -23 Oct 2016
MASTER OF COMPUTER APPLICATIONS			
87	Agile Technology	Mr. Biju J. Abraham, Visa, and Incorporates, USA	11 th Aug 2012
88	Digital Trends and its Applicability to Industries	Mr. Santhosh C. Kurup, Delivery Centre Head, TCS Kochi	1 st Nov 2013
89	Free Open Software	Ms. Saleena S., Principal of Technical Office, CDAC, Thiruvananthapuram	3 rd Nov 2013
90	Internet of Things	Mr. Satish Babu, Director of ICFOSS, Thiruvananthapuram	23 rd Sep 2014
91	Spatial Database and its Applications	Mr. Radhakrishnan, IITMK, Thiruvananthapuram	10 th and 11 th of Feb 2015
92	Entrepreneurship Development	Mr. RajeshKumar, Senior Manager, SATMETRICS Systems, Bangalore	17 th Aug 2015
93	Cloud Security in Android Applications	Mr. JayaPrakash, TCS, Malaysia	17 th Aug 2015
94	Advanced Computer Graphics Using Open GL	Dr. Sreeni K., Assistant Prof., College of Engineering, Thiruvananthapuram	6 th Nov 2015
95	Ethical Hacking and Cyber Security	Mr. Albin Thomas,Senior Information Security Consultant, ISYX Technologies, UAE	18th Dec 2015
96	FDP on Mathematical Challenges in Cyber Security	Prof. Vijayagovindan, NSS College, Ottapalam Mr. Bhadran, Associate Director, CDAC Dr. Sudeep K S, Assistant Professor, NIT Calicut. Mr. Suresh Sankar , Information Security Manager, TCS Kochi	04-09 Jan 2016

97	Software Engineering Tools	Dr. Renu, Asst Prof,CUSAT	20th Jan 2016
98	Data Mining using WEKA tool	Dr. Sabu M R, Associate professor, MES college, Marampally,Aluva,	18th Feb 2016
99	New Trends in Biometric Application-Issues and Possibilities	Dr Anzar S M, AssociateProfessor from MES College Of Engineering Kuttipuram,malappuram	18th Mar 2016
100	Linux Administration	Hiron Bose Technical Engineer, CDAC Trivandrum	12th Apr 2016
101	Ethical Hacking and Cyber Security	Mr. Albin Thomas,Senior Information Security Consultant, ISYX Technologies, UAE	18th Dec 2015
102	Software Engineering Tools	Dr. Renu, Asst Prof,CUSAT	20th Jan 2016
103	Data Mining using WEKA tool	Dr. Sabu M R, Associate professor, MES college, Marampally,Aluva,	18th Feb 2016
104	New Trends in Biometric Application-Issues and Possibilities	Dr Anzar S M, AssociateProfessor from MES College Of Engineering Kuttipuram,malappuram	18th Mar 2016
105	Linux Administration	Hiron Bose Technical Engineer, CDAC Trivandrum	12th Apr 2016
106	FDP on Contemporary Developments in Optimization Techniques and its Applications	Dr. K. Satheesh KumarDept of Futures Studies,University of Kerala, Kariavattom Dr. Prince A, RIT Kottayam Dr. Vinod Chandra S S, Director, Computer Centre University of Kerala Dr. Sishaj P Simon, NIT, Tiruchirappalli.	18-05-16 to 23-05-16

MATHEMATICS			
107	Workshop on Recent Advances in Applied Mathematics	Dr.A.Vijayakumar, Dept of Mathematics,CUSAT. Mathematics,IIT Madras Dr.Deepak T G, IIST,TVM.	27-11-14 to 28-11-14
108	FDP on Mathematical Challenges in Cyber Security	Mr. Bhadran, Associate Director, CDAC Dr. Sudeep K S, NIT Calicut. Mr. Suresh Sankar , Information Security Manager, TCS Kochi	04-01-16 to 09-01-16

3.1.7 Provide details of prioritized research areas and the expertise available with the institution.

The expertise of faculty of various departments and their areas of research interest are provided in the Table 3.1.6

Table 3.1.6 Details of prioritised research areas and the expertise available with the institution

No	Faculty	Area of research	Department
1	Dr. Sudhi Mary Kurian Dr. Sunil Kumar B. Dr. Seema K. Nayar Dr. Anu V. Thomas	Construction Management	Civil Engineering
2	Dr. Suresh S. Dr. Anitha Joseph Dr. Saraswathy B. Dr. Bindhu S. Dr. Sirajuddin M. Dr. Sajeeb R. Dr. Nazeer M. Dr. Benny Joseph	Structural Engineering	
3	Dr. Bushra I.	Geotechnical Engineering	
4	Dr. Ayoob S Dr. Najee M. Dr. Udayakumar J. Dr. Priya K L	Environmental Engineering	
5	Dr. Reebu Zachariah Koshy	Transportation Engineering	
6	Dr. K K Abdul Rasheed Dr. Mohammed Sajid N.K. Dr. K.A. Shafi Dr. Rijo Jacob Thomas	Cryogenic Engineering	
7	Dr. J. Nazar Dr. Jose Prakash M. Dr. M.C. Mohammed Ali Dr. Thilakan H. Dr. K.E. Reby Roy	Heat transfer and Fluid flow	
8	Dr. D Roshan Kumar	Manufacturing	

	Dr. Dileep P.N. Dr. S. Jose Dr. A. Sadiq		
9	Dr. Shajahan C.A. Dr. Nizar Hussain M.	Industrial Engineering and Management	
10	Dr. Aju Kumar V. N.	Design	
11	Dr. C. Ushadevi Amma	Instrumentation	Electrical Engineering
	Dr. K. Bijuna Kunju	Power Systems	
	Dr. Imthias Ahmed T. P. Dr. Sheeba R		
12	Dr. K. Gopakumar	Signal Processing	Electronics and Communication Engineering
	Dr. Unni C.	Semiconductor Nanomaterials	
	Dr. Sheeba O.	Image Processing	
	Dr. T A. Shahul Hameed	Microelectronics	
13	Dr. K. B. Radhakrishnan Dr. A. S. Abdul Rasheed	Chemical Engineering Heat Transfer	Chemical Engineering
14	Dr. Dili A.S.	Climatology	Architecture
	Dr. Annie John Dr Sumam Panjikkaran	Planning	
	Dr. Santosh Kumar	Vernacular Architecture	
15	Dr. Premlet B.	Nonlinear Dynamics and Chaos	Physics
16	Dr. Mathew Varkey Dr. K. Geetha Dr. Teena Liza Dr. Raveendran Nair	Graph Theory, Linear Algebra	Mathematics
17	Dr. D. Chitraprasad Dr. Manu J Pillai	Computational Geometry	Computer Science and Engineering
18	Dr. Nadeera Beevi S.	Compilers and Optimisation	Computer Applications
19	Dr. D. Chitraprasad Dr. Manu J Pillai Dr. Anamma John	Computational Geometry Computer Networking Data Mining	Computer Science and Engineering

3.1.8 Enumerate the efforts of the institution in attracting researchers of eminence to visit the campus and interact with teachers and students?

The departments together with the Research Council of the institution organize various programmes to nurture research culture among the students and faculty. Many of our alumni are working as scientists and research experts in organizations like ISRO, DRDO, etc. The institution shows keen interest in inviting them to share their experience and expertise with the faculty and students. Experts are also invited from industries and research organizations to deliver talks and have discussion with students and faculties especially from relevant area of their research. Some of the notable researchers who visited our campus are given in the Table 3.7.3.

3.1.9 What percentage of the faculty has utilized Sabbatical Leave for research activities? How has the provision contributed to improve the quality of research and imbibe research culture on the campus?

Most of the faculty undergoes Ph.D through Quality Improvement Programme of AICTE. They do their research programme in reputed institutions such as IITs, IISc and NITs. A few of our faculty do their research under the guidance of the faculty from this institution. Faculty can avail up to six months leave during their tenure in this institute as sabbatical leave to continue research. Around 10 percentage of the faculty have already availed this option. This provision helps faculty enhance their research experience, thereby improving the quality of research culture in the campus.

3.1.10 Provide details of the initiatives taken up by the institution in creating awareness/advocating/transfer of relative findings of research of the institution and elsewhere to students and community (lab to land)

Research scholars are motivated to present their work and findings before the faculty and students of the institution. This will enhance the awareness of the students in research. Number of faculty presented their research papers in the conferences and published in the reputed journals. Mechanical Engineering and Civil Engineering departments take up consultancy works from local industries like KMML, IRE, etc. The outcome of this is directly benefited by the local people residing in Chavara area. Through a recently introduced 'test-rig/prototype' projects, faculty will get seed money to undertake projects comprising of M.Tech and B.Tech students.

Our faculty Dr. Udayakumar. J. is conducting weekly programme about environment on Radio Benziger, the FM radio of Kollam, from December 2012 onwards.

The Integrated Community Service Centre (ICSC) of the college is assigned the task of streamlining and implementing the projects having social relevance.

3.2 Resource Mobilization for Research

3.2.1 What percentage of the total budget is earmarked for research? Give details of major heads of expenditure, financial allocation and actual utilization.

The research fund for the project and other consultancy are obtained from various funding agencies of the government and industries. Twenty percentage of the total budget is earmarked for research activities and more than 90 percentage of the budget is utilised for the purpose. The major heads of expenditure for research for previous years are shown in the Table 3.2.1

Table 3.2.1 Expenditure for research (In Rupees)

SL. No.	Items	2016 - 17	2015 - 16	2014 - 15	2013 - 14
1	Library	2609019	3313259	2099995	1657569
2	Laboratory Equipments	1841677	5302455	3308184	6903470
3	Software	1349000	55800	1145000	1010315
4	Reaserch & Development	3138780	288533	1549704	2522047

5	Research & Development (TEQIP)	2937587	116567	1013974	65406
6	Training & Travel (TEQIP)	5277126	2881450	7854206	4242768
	TOTAL	17153189	11958064	16971063	16401575

3.2.2 Is there a provision in the institution to provide seed money to the faculty for research? If so, specify the amount disbursed and the percentage of the faculty that has availed the facility in the last four years?

Yes. Seed money is provided by agencies like TEQIP and CERD. The institution takes initiative and provides all types of support to avail this seed money by the research faculty every year. Faculty are provided with infrastructure facility and administrative support to get the seed money sanctioned from various agencies. Around seven percentage of the faculty members obtained seed money to start their work. The details of seed money availed by faculty are provided in the Table 3.2.2.

Table 3.2.2 Seed money projects funded by TEQIP and CERD during 2012-17 (In Rupees)

No	Title of the Project	Funding Agency	Year of Sanction	Amount (lakhs)	Ongoing/ completed
CIVIL ENGINEERING					
1	Finer Scale Rainfall Projection of Kerala Meteorological Subdivision	CERD	2012	1.45	Completed
2	Groundwater Recharge Modelling of Kerala Meteorological Subdivision Under Climate Change Scenario	CERD	2012	2	Completed
3	Formulation of a Process Assessment Model(PAM) for Jalanidhi	TEQIP	2013	1.15	Ongoing
4	Electro Kinetic Remediation of Kuttanad Clay	TEQIP	2013	1.35	Completed
5	Investigation of Interlocking Building Block Masonry	TEQIP	2013	1	Completed
6	Investigations on the Durability of Ternary Blended Cementitious Systems in Various Chemical Environments	TEQIP	2013	1.07	Completed
7	Investigation into the Synergistic Effects of Ternary Cementitious Systems for Sustainable Development	TEQIP	2013	1.2	Completed
8	Utilization of ETP Solid Waste	KMML	2015	3	Completed
9	An investigation into the percolation of rainwater on permeable pavements using Rainfall simulator	TEQIP	2016	1.28	Ongoing
MECHANICAL ENGINEERING					

10	Investigation on Heat Transfer and Fluid Flow Characteristics of Jet Impingement Cooling for High Power Electronics	CERD	2015	2	Ongoing
11	Numerical and Experimental Investigations of Heat Transfer Characteristics of Helical Coil Heat Exchanger.	TEQIP II	2013	0.5	Completed
12	Jet Impingement Quenching	TEQIP II	2013	0.52	Completed
13	Synthesis of Nano Particles by Chemical Routes	TEQIP II	2013	1.35	Completed
14	Computational and Experimental Studies on Chillover of Helically Coiled Liquid Nitrogen Pipes with Continuous and Pulse Flows.	TEQIP II	2013	1.25	Completed
15	Experimental Studies on Helium Mass Requirement for Cryogenic Propellant Tanks	TEQIP II	2013	0.3	Completed
16	Studies on the performance evaluation of a self-navigating autonomous vehicle	TEQIP	2016	1.32	Ongoing
17	Experimental investigation on mechanical behavior of femur bone under various load	TEQIP	2016	1.45	Ongoing
18	Experimental Investigation on the Mechanical Behavior of Artery Stents	TEQIP	2016	1.65	Ongoing
19	Experimental Investigation of cashew nut oil as bio fuel in diesel engine	TEQIP	2016	1.2	Ongoing
20	Investigation of fracture properties of composite materials	TEQIP	2016	1.2	Ongoing
21	Effect of addition of Titanium nano particles on the Mechanical Properties of Centrifugally cast Aluminum alloy	TEQIP	2016	0.996	Ongoing
22	Experimental study on food waste composting System	TEQIP	2016	0.397	Ongoing
23	Investigation of factors in fluency Natural gas hydrate formation and dissociation	TEQIP	2016	0.75	Ongoing
24	Investigation on materials for 3D printing	TEQIP	2016	0.642	Ongoing

25	Study on the effect of cryo treatment on advanced tool materials	TEQIP	2016	1.3	Ongoing
26	Experimental set up for measurement of multilayer insulation effectiveness	TEQIP	2016	1.31	Ongoing
27	Investigatory study of Vacuum qualified materials	TEQIP	2016	1.57	Ongoing
28	Development and performance assessment of liquid desiccant air conditioner	TEQIP	2016	1.05	Ongoing
29	Investigations on the effect of internal coatings on the heat transfer and fluid quality during chill-down of cryogenic fluids	TEQIP	2016	1.335	Ongoing
COMPUTER SCIENCE AND ENGINEERING					
30	Air Writing -Tracking and processing hand gestures using Doppler Effect and Infra -red Array”	CERD	2017	1.3	Ongoing
31	Performance Improvement in Wireless Networks:A Cross layer Approach	TEQIP II	2016	1.92	Completed
32	Air Writing -Tracking and processing hand gestures using Doppler Effect and Infra -red Array”	CERD	2017	1.29	Ongoing
33	Performance Improvement in Wireless Networks:A Cross layer Approach	TEQIP II	2016	1.92	Completed
34	Sentiment Analysis on various domains	TEQIP II	2016	1.05	Completed
35	High-Rise Building Boundary Tracing and Regularization from LIDAR point cloud	TEQIP II	2016	1.02	Completed
ELECTRONICS & COMMUNICATION ENGINEERING					
36	Home based therapy for people with spinal cord injury	TEQIP	2016	1.05	Completed
37	Smart Network for Women Security	TEQIP	2016	0.80	Completed
38	AURA	TEQIP	2016	1.01	Completed
39	Physiological Kinetic, and Kinematic assessment of disability and proposing therapeutic and rehabilitative aids	TEQIP	2016	0.46	Completed
40	Secured E Adhaar	KTU	2016	0.85	Ongoing

ELECTRICAL AND ELECTRONICS ENGINEERING					
41	Indigenous development of insulation oil for transformers	TEQIP	2016	1.5	Completed
42	Feasibility study of micro wind turbines and Instrumentation schemes for renewable energysystems	TEQIP	2016	1.5	Ongoing
43	Design and implementation of Solar Fed Invereter with minimum harmonics	TEQIP	2016	1.35	Completed
44	Ultrasound assisted needle steering robot and stiffness assessment of soft – tissue mimicking phantoms	TEQIP	2016	1.45	Completed

This year, more than 35 proposals has been received for seed money and 25 of them are forwarded to the final review by the Research Guidance Committee of TEQIP for approval and is under processing.

3.2.3 What are the financial provisions made available to support student research projects by students?

The institution provides financial support up to Rs. 10,000 each for the five best student research projects from each department. Alumni association also provides fund to most deserving projects by considering the social and economical relevance. In certain cases the industries sponsor the student projects if the project is conducted as per their requirement. In addition to these, the institution provides awards for the best B.Tech project every year to motivate the students.

3.2.4 How does the various departments/units/staff of the institute interact in undertaking inter-disciplinary research? Cite examples of successful endeavours and challenges faced in organizing interdisciplinary research.

Most of the faculty researches are interdisciplinary though the works are carried out in individual departments. They utilize the facilities of other departments and the expertise from faculties of various disciplines. A few of the research scholars have their guide/ co-guide from other departments. Some of the student projects are also interdisciplinary. They get the guidance from various departments. One of the examples for interdisciplinary research is the work of Prof. Jolly John of the Department of Architecture, who carries out research in acoustics under the guidance of Dr. B. Premlet of Department of Physics. Normally, no challenges are faced by faculty to carry out interdisciplinary research. In the case of any issues, it will be properly addressed by the Research Council of the institute.

3.2.5 How does the institution ensure optimal use of various equipment and research facilities of the institution by its staff and students?

The research council of the institution ensures the availability of the existing facility to researchers in the institutional and departmental levels. The researcher can avail the facilities in any department through research council. The research equipment, infrastructure, internet and library facilities are adequate for research work of the faculty and students of our institution. The facilities are provided on demand in such a

fashion that students and staff get the facility without any hindrance. Laboratories and library are open even after regular working hours, to help the researchers.

3.2.6 Has the institution received any special grants or finances from the industry or other beneficiary agency for developing research facility? If 'yes' give details.

Yes, the institution has received many grants from industries and research organizations to develop research facilities. Most of the funds are utilized for purchasing latest equipment, softwares and upgrading the existing facilities. Majority of the funding is through collaboration. The institution has MoU with major industries and research organizations in India such as ISRO, KMML, Tata Elxsi, etc. The details of a few research grants received by the institution are provided in the Table 3.2.3

Table 3.2.3 Special grants/ finances from industry/other agencies(In Rupees)

No	Funding Agency	Amount (Lakhs)
MECHANICAL ENGINEERING		
1	L.P.S.C, I.S.R.O (Completed)	9.48
2	L.P.S.C, I.S.R.O (Completed)	9.65
3	AICTE, RPS (Completed)	14.5
4	Dept. of Atomic Energy (Institute of Plasma Research, Ahmadabad), (Ongoing)	22.33
5	AICTE, RPS (completed)	10.00
6	AICTE (completed)	1.80
7	L.P.S.C, I.S.R.O(completed)	6.38
8	KSCSTE (Ongoing)	3.00
9	KSTES (Ongoing)	4.30
10	Dept. of Atomic Energy (Institute of Plasma Research, Ahmadabad), (Ongoing)	25.15
CIVIL ENGINEERING		
11	AICTE	8.5
12	AICTE	7.1
13	Kerala State Council for Science Technology & Environment	8.613
14	AICTE	10
15	KMML, Chavara	3
CHEMICAL ENGINEERING		
16	MHRD	15
COMPUTER SCIENCE AND ENGINEERING		
17	AICTE	10
18	AICTE	6.65
19	AICTE	8
20	CERD	1.1
21	CERD	1.86
22	CERD	1.2987
ELECTRICAL AND ELECTRONICS ENGINEERING		
23	AICTE	11.5
24	AICTE	2.8

25	District Industries Centre, Kollam	16.5
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3.2.7 Enumerate the support provided to the faculty in securing research funds from various funding agencies, industry and other organizations. Provide details of ongoing and completed projects and grants received during the last four years.

Management of the institution extends all the support for securing research funds from various funding agencies, industry and research organizations. The Research Council will inform the date to apply for the project in advance and required guidelines will be provided to the faculty. The list of sanctioned projects since 2010 is given in Table 3.2.4

Table 3.2.4 Details of major funded projects

No	Title of the project	Funding agency	Year	Amount (lakhs)	Ongoing/ Completed
CIVIL ENGINEERING					
1	Comparative Study of Effectiveness of Breakwater & Groynes	AICTE	2010	8.5	Completed
2	Development of Green Concrete	Kerala State Council for Science & Technology	2011	8.613	Completed
3	Modelling & Study of the Characteristics of Motorized Two-Wheeler Traffic on Urban Roads	AICTE	2011	7.1	Completed
4	Three Legged Articulated Type Supporting Structure for Off-Shore Wind Energy Turbine	AICTE	2012	10	Ongoing
MECHANICAL ENGINEERING					
5	Analysis of Film Cooling in a Semi Cryogenic Rocket Engine Including the Effect of Chemical Reaction	LPSC, ISRO	2011	9.65	Completed
6	CFD Analysis of Regenerative Coolant Passages in a Semi-Cryogenic Rocket Engine	LPSC, ISRO	2014	9.48	Completed
7	Computational Investigation of Strut Patterns on the Mechanical Behaviour of Coronary Stents.	AICTE , RPS	2012-13	10	Ongoing
8	Development of Energy Efficient System Using Nanofluid	AICTE RPS	2012-13	14.5	Ongoing

9	Development of Emissivity Measurement Setup and Studies of Emissivity of Cryo Components Down to 77K	Dept. of Plasma Research, Ahmadabad, Department of Atomic Energy, Govt. of India	2015	22.33	Ongoing
ARCHITECTURE					
10	Modernization of Acoustic Laboratory	MODROB - Sponsored by AICTE	2012	8.5	Ongoing
11	Acoustical Evaluation of School Buildings	KSCSTE - Sponsored by the State Govt	2012	3.39	Ongoing
COMPUTER SCIENCE AND ENGG.					
12	Colour Image Compression Based on Block Truncation Coding Using Fuzzy Edge Operator and Genetic Algorithm	CERD	2012-14	10	Completed
13	Modernization of Microprocessors and Interfacing Lab	AICTE	2011-13	8	Completed
14	Colour Image Compression Based on Block Truncation Coding Using Fuzzy Edge Operator and Genetic Algorithm	AICTE	2012-14	10	Completed
15	Soft Computing Techniques in Engineering Applications	AICTE	2012-13	6.65	Completed
16	Automated Machine Vision	CERD	2014-15	1.87	Completed

3.3 Research Facilities

3.3.1 What are the research facilities available to the students and research scholars within the campus?

The institution has research centres in Mechanical and Civil Engineering departments. Most of the labs have sophisticated equipments and software to support research activities. The central library subscribes 3000 e-journals of various disciplines and 104 printed journals. Also the library has DELNET and ENLIST database which is having many number of e-books and other information. The institute provides 50 Mbps leased line for internet access. The faculty can access the internet from their staff room utilizing Wi-Fi connectivity. The research facilities available in the institution under various departments are listed in Table 3.3.1.

Table 3.3.1 Research facilities in different departments

No	Laboratory	Facility Available
MECHANICAL ENGINEERING		
1	Computational Fluid Dynamics (CFD) Centre	Equipped with high end computers and CFD software FLUENT.
2	Nanotechnology Research Centre	Equipments for synthesis of nano-particles Equipments for production and characterization of nano-fluids
3	SPACE Technology Lab	Cryogenic chill down experimentation facility
4	Biomechanics Lab	Workstation and ABAQUS software
5	Cryogenic Research Lab	Work in progress
CIVIL ENGINEERING		
6	Structural Engineering Lab	Static and cyclic load testing facilities for structural models.
7	Structural Dynamics Lab	Dynamic testing facility using horizontal shake table
8	Geotechnical Lab	Analysis of geotechnical problems using MIDAS GTS software
9	Environmental Engineering Lab	Facilities for analysis of organic and inorganic strength of waste water using BOD/COD apparatus and UV/Vis Spectrophotometer
10	Transportation Lab	Performing Marshall mix designs for hot mix and recycled bituminous mixes.
ELECTRONICS AND COMMUNICATION ENGINEERING		
11	VLSI Design Lab	Mentor graphics, Cadence tool, Xilinx and FPGA for high end digital design, ATHENA/ATLAS software
COMPUTER SCIENCE AND ENGINEERING		
12	Image Processing Lab	Hp Z230 Tower Workstation, PCs-Corei5 with 4GB RAM,500GBHDD, DVD Writer Samsung Monitor, Image processing Kit . Image processing Software- MATLAB R2013b (3 USER):Tool Kit Software: Simulink, Signal Processing, Image Processing, Image Acquisition, Neural Network, Fuzzy Logic, Statistics,Optimization, Wavelet, Control System and Matlab Coder;
13	Networking Lab	Server Computer – Dell Power edge R210 II Xeon-processor E301220v2, 3.10 Ghz, 16 Gb RAM, 2x 1TB SATA HDD RAID, 24 “ Monitor Desktop PCs- HP 280 G1 Business Desktop- Core i3 4160T 3 MB Cache, 8 GB SDRAM, 500 GB SATA HDD: Windows 2008 V2 , Ubuntu 15.10 Qualnet 7.1 Simulator

3.3.2 What are the institutional strategies for planning, upgrading and creating infrastructural facilities to meet the needs of researchers especially in the new and emerging areas of research?

To promote research activities in the college, a Research Council is constituted with Principal as the chairman of the council. The council makes research policy and reviews it periodically. Necessary arrangements for the smooth conduct of research activities are done by the research council. It encourages research faculty to submit the research proposal in thrust areas and the most deserving projects are selected after careful evaluation. The finalized projects are submitted to various funding agencies to obtain sanction. The institution extends support to the sanctioned projects by providing facilities for research scholars of the college. The institution offers research programmes in Mechanical and Civil Engineering branches and faculty members are actively pursuing research in thrust areas with state-of-the-art equipment in addition to teaching and consultancy. Many faculty members are approved research guides of University of Kerala and Kerala Technological University. The institution has initiated the setting up of FABLAB to support inter-disciplinary research work of students.

Research policy framed by the research council includes:

- Insist and ensure ethical standards, social responsibility and inculcate research culture through teaching – learning process
- Provide an environment conducive to research and allocate infrastructural facilities for research
- Encourage collaborative research
- Provide utmost importance to research that leads to product development, commercialization and entrepreneurial activities
- Extend support to the faculty to obtain Intellectual Property Rights (IPR)

3.3.3 Has the institution received any special grants or finances from the industry or other beneficiary agency for developing research facilities?? If 'yes', what are the instruments / facilities created during the last four years.

Yes, the institution has received many grants from industries and research organizations to develop research facility. Various departments have MoU with major industries and research organizations in India such as ISRO, KMML, Tata Elxsi, etc. The details are given in Table 3.3.2.

Table 3.3.2 List of instruments/facilities obtained from funded project during 2012-17

No	Title Of The Project	Facility/Instrument	Funding Agency	Amount (Lakhs)
1	Analysis of Film Cooling in a Semi Cryogenic Rocket Engine Including the Effect of Chemical Reaction	CFD Lab High End Work Station ANSYS CFX Software ANSYS FLUENT	LPSC, ISRO (Completed)	9.41
2	CFD Analysis of Regenerative Coolant Passages in a Semi-Cryogenic Rocket	MATLAB LABVIEW	LPSC, ISRO (Completed)	9.61

	Engine			
3	Modernization of PG Computer Centre and Research Lab		AICTE,MOD ROBS (Completed)	16
4	Development of Energy Efficient Cooling Systems Using Nano-Fluids	NANO LAB Brookfield Viscometer, KD2 Thermal Conductivity Probe, Refrigerated Centrifuge, Magnetic Stirrer, PH Meter, Ultrasonic Agitator	AICTE, RPS (Completed)	14.5
5	Development of Emissivity Measurement Setup And Studies of Emissivity of Cryo-Components Down to 77K	Data acquisition system Digital multi meter Liquid nitrogen storage tank Cryo treatment system Thermal conductivity testing apparatus	Department Of Atomic Energy (Institute Of Plasma Research, Ahmadabad.)	22.33
6	Finite Element Analysis of Coronary Artery Stents	Workstation And Abaqus (Analysis Software)	AICTE-RPS (Ongoing)	10
7	Investigations On Heat Transfer and Fluid Flow Characteristics of Jet Impingement Cooling for High Power Electronics	Jet Impingent Cooling Test Facility, IR Camera	CERD (Ongoing)	2
8	Computational and Experimental Studies of Helically Coiled Liquid Nitrogen Pipes with Continuous and Pulse Flows	Chill Down Test Facility	TEQIP-Seed Money Project (Ongoing)	1.2
9	Synthesis of Nano-Particles by Chemical Routes & Their Characterization	Chemicals for Nano Particles	TEQIP- Seed Money Project	1.35
10	Thermal and Mechanical Characteristics of Jet Impingement Quenching for Carbon and Alloy Steel	Quenchant, Test Specimen	TEQIP -Seed Money Project	0.52
11	Comparative Study of Effectiveness of Breakwater & Groynes	Computer Facility, MIKE Software	AICTE	8.5

12	Modernisation of Transportation Engineering Lab	Marshall Stability Test Equipment with Digital Display and Graphic Plotter Brookefield Digital Viscometer, CBR Test Equipment with Accessories Automatic Compactor, Ductility Testing Machine for Bitumen	AICTE	10
13	Development of Green Concrete	Electric Oven Heating Furnace (1200°C)	Kerala State Council For Science Technology	8.613
14	Modelling & Study of the Characteristics of Motorized Two-Wheeler Traffic on Urban Roads	Sony Digital HD Video Camera with Tripod and Accessories , Dell XPS 8000 PC with 24 Inch HD Display for Traffic Data Analysis. FALCON HR Doppler Speed Radar (US Make). Statistical Analysis Software IBM.	AICTE	7.1
15	Three Legged Articulated Type Supporting Structure for Off-Shore Wind Energy Turbine	Computer Facility, Software SEASAM	AICTE	10
16	Modernization of Heat Transfer Operations Lab	Equipments Modernisation	MHRD	15
17	Colour Image Compression Based on Block Truncation Coding Using Fuzzy Edge Operator and Genetic Algorithm	Hp Z230 Tower Workstation Image Processing Kit, Finger Print/Biometric-Sensor And Interface, Real Time Processor 533, CCD Image Sensor Vision Builder A1	AICTE	10

		Software		
18	Modernization of Microprocessor and Interfacing Lab	Microprocessor Training Kits and Interfacing Cards	AICTE	8
19	Modernization of Power System Laboratory	Second Stage of Impulse Voltage Generator of High Voltage Setup Numerical Relay	AICTE	11.5
20	Setting up of Testing Centre	Power Quality Analyser(Fluke 435) 120 kV DC Hipot MS-2A Meggar	District Industries Centre, Kollam	15
21	IoT Lab	Ubimot,UbiSense,UbiDA C,	TEQIP Seed Money Project	1.92
22	Air Writing Tracking and processing hand gesture using Doppler Effect and Infra Red Array	Panasonic GridEye sensor with Evaluation Board2 Microsoft Kinect 2.0 1 Raspberry Pi 3 3 HB100 Microwave Doppler sensor 3	CERD	1.298

3.3.4 What are the research facilities made available to the students and research scholars outside the campus / other research laboratories?

Our students and faculty are utilizing facilities in national institutes and research organizations as part of their research activities. The institute makes these facilities available to faculty and students through official letters, collaborations and MoUs.

All the laboratory facilities including sophisticated equipment in this institute are made available to students and research scholars from outside the campus, based on recommendations by the Heads of the Departments. CNC Machines, surface roughness tester, VLSI design facilities and various software are a few of the facilities provided for external research students.

Some of the facilities utilized by the students and research scholars outside the campus are listed below.

- Scanning Electron Microscope (SEM), IIT Chennai
- Transmission Electron Microscopy (TEM), IIT Chennai
- Cryogenic facilities in IISc-Bangalore
- Library facilities of ISRO-Thiruvananthapuram
- VLSI Lab, NIT Kozhikode
- Offshore testing facilities, IIT-Chennai

3.3.5 Provide details on the library/ information resource centre or any other facilities available specifically for the researchers?

The central library subscribes 3000 e-journals of various disciplines and 104 printed journals. Moreover, the library has DELNET and ENLIST database which is having several e books and other information. The institute provides 25Mbps leased line for

internet access. The faculty can access the internet from their staff room utilizing Wi-Fi connectivity.

3.3.6 What are the collaborative research facilities developed/ created by the research institutes in the college. For ex. Laboratories, library, instruments, computers, new technology etc.

The institute is in the process of establishing collaborative research facilities in the institute. Some of the collaborative research facilities developed in the various departments are shown in the table given below.

Table 3.3.3 Collaborative research facilities developed by research institutes

No	Department	Laboratory	Available Facility	Collaboration
1	Mechanical Engineering	Computational Fluid Dynamics (CFD) Laboratory	Equipped with High End Computers and Softwares.	Liquid Propulsion System Centre (LPSC), Valiamala Indian Space Research Organization (ISRO), Government of India.
2	Mechanical Engineering	Nanotechnology Research Centre	Equipments for Synthesis of Nano-Particles. Equipments for Production and Characterization of Nano-Fluids	National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram & Larson & Toubro.
3	Mechanical Engineering	SPACE Technology Lab	Cryogenic Chill Down Experimentation Facility	Indian Space Research Organisation (ISRO), Government of India
4	Mechanical Engineering	Cryogenic Research Lab	Cryo treatment system Thermal conductivity testing apparatus	Department of Atomic Energy

3.4 Research Publications and Awards

3.4.1 Highlight the major research achievements of the staff and students in terms of patent obtained and filed (process and product)

➤ Patents obtained and Filed

Table 3.4.1 Details of Patents obtained and filed

No	Patents	Faculty
1.	A Power Shifting Device for Regenerative Braking System: (No.1583/CHE/2012, The Patent Office Journal 25/10/2013, Page: 27688)	Dr. A. Sadiq
2.	Ergonomic Pen Stand: (No. 5375/CHE/2013, The Patent Office Journal 06/12/2013, Page 30290)	

3.	Development of Automatic CG Adjusting Material Handling Device: Patent Filed (Feb 2014)	
4.	AURA – A system for digital identity of an entity. Patent application number 201641024172 filed on 14/7/2016.	Prof. Nishanth

➤ **Research inputs contributing to new initiatives and social development**

The Mechanical Engineering department has research collaboration with the following Universities /Organizations within India and abroad

- Karlsruhe Institute of Technology(KIT),Germany
- University of Twente, Netherlands
- Indian Institute of Science, Bangalore
- Institute of Plasma Research, Ahmadabad.

In addition, the following faculty members have joint publications with National Institutes and R&D organizations such as LPSC, ISRO and IISc.

- Dr. M. Jose Prakash
- Dr. K. E. Reby Roy
- Dr. K. K. Abdul Rasheed.
- Dr. K. A. Shafi
- Dr. N. K. Mohammed Sajid.
- Prof. Mathew Skaria

3.4.2 Does the Institute publish or partner in publication of research journal(s)? If ‘yes’, indicate the composition of the editorial board, publication policies and whether such publication is listed in any international database?

The institute is yet to start its own publication. At present some of our active researchers are the reviewers of reputed international journals and conferences.

3.4.3 Give details of publications by the faculty and students:

Publications per Faculty

There are a total of 518 publications in national/ international journals and conferences. The faculty strength of the institution is 176. The publication of faculty per year is 0.73

Table 3.4.2 Faculty publications during 2012-17

No	Name of the Department	National	International
1	Civil Engineering	18	147
2	Mechanical Engineering	19	163
3	Electrical & Electronics Engineering	6	64
4	Electronics & Communication Engineering	4	48
5	Computer Science & Engineering	2	85
6	Chemical Engineering	0	12
7	Architecture	0	14
8	MCA	8	11

Table 3.4.3 Student publications during 2012-17

No	Name of the Department	National/International
1	Civil Engineering	60
2	Mechanical Engineering	58
3	Electrical & Electronics Engineering	9
4	Electronics & Communication Engineering	13
5	Computer Science & Engineering	30
6	Chemical Engineering	14
7	MCA	4

Table 3.4.4 Books by faculty with ISBN numbers and details of publisher

No	Faculty	Title and Publisher	ISBN/ISSN	Chapter/ Book
1	Dr. Unni C.	(f)A Manual (g)of Laboratory Experiments and Workshop Practice: (h)Design of Circuits Using Discrete Semiconductor Devices, IK International	ISBN 9789381141236	Chapter
2	Dr. T. A. Shahul Hameed	(i)Organic Light Emitting Diodes: Device Physics & Effect of Ambience on Performance Parameter	ISBN 9789533075761	Chapter
3	Dr. S. Jose	Metallurgy and Material Science Pentagon Educational Services	ISBN 9788192441412	Book
4	Dr. S. Jose	Mechanics of Solids Pentagon Educational Services	ISBN 9788192441443	Book
5	Dr. S. Jose	(j)Computer Programming & Numerical Methods, Pentagon Educational Services	ISBN 9788192441474	Book
6	Prof. A.S. Saleem	(k)Hydraulic Machines and Air Compressors	ISBN 9789352580217	Book
7	Prof. A.S. Saleem	(l)Open channel flow and Hydraulic Machines	ISBN 9789352581979	Book
8	Dr. Sudhi Mary Kurien	Mechanics of Solids, Pentagon Educational Services	ISBN 9788192441443	Book
9	Prof. Adarsh S.	Optimal Design of Irrigation Canals- Principles and Practice, LAP Lambert Academic Publishing, Germany	ISBN 9783659330513	Book
10	Dr. S. Ayoob	Fluoride In Drinking Water: Status, Issues And Solutions	Taylor& Francis, UK (under printing)	Book

Table 3.4.5 Books by faculty with details of publisher

No	Faculty	Book	Publisher
1	Dr. K. Gopakumar	Introduction to Electronics and Communication	Phasor Books, Kerala
2	Dr. K. Gopakumar	Design and Analysis of Electronic Circuits	Phasor Books, Kerala
3	Dr. K. Gopakumar	Basics of Electronics and Communication Engineering	Phasor Books, Kerala
4	Prof. Nishanth N Prof. Reshna S	Industrial Electronics	Phasor Books, Kerala
5	Prof. Nishanth N	Microprocessors and Applications, Phasor Book,	Phasor Books, Kerala
6	Dr. Lalu Mangal	Introduction to Civil Engineering	Phasor Books, Kerala
7	Dr J Udayakumar	Basic Civil Engineering	Phasor Books, Kerala
8	Prof Resmi S	Textbook on Mechanics	Phasor Books, Kerala
9	Prof. A.S. Saleem	Hydraulic Machines and Heat Engines	Phasor Books, Kerala
10	Prof. A.S. Saleem	Mechanical Engineering	Phasor Books, Kerala
11	Dr. A. Sadiq	Design and Engineering	Phasor Books, Kerala
12	Dr. T. P Imthias Ahamed	Introduction to Electrical Engineering	Phasor Books, Kerala
13	Dr. T. P Imthias Ahamed	Basics of Electrical Engineering	Phasor Books, Kerala
14	Dr. T. P Imthias Ahamed	Control Systems	Phasor Books, Kerala

3.4.4 Provide details (if any) of research awards received by the faculty

- Recognition received by the faculty from reputed professional bodies and agencies, nationally and internationally.
- Incentives given to faculty for receiving state, national and international recognitions for research contributions.

Table 3.4.6 Research awards received by the faculty

No	Year	Faculty	Area of Specialization	Contribution/Achievement / Research Output
1	2010	Dr. Sadiq A .	Surface Finishing. Investigation into Magnetorheological Abrasive Honing	INAE 2010 National award for innovative research
2	2010	Dr. I. Bushra	Marine Geotechnical Engineering	IGS-ONGC Biannual prize for the best paper
3	2011	Dr. Anitha Joseph	Feasibility Study of Offshore Breakwater System as a Protection Method for Kerala Coast	Gold medal and certificate awarded for best paper in the subject from Institution of Engineers (India)
4	2012	Dr. K. Bijuna Kunju	Power and Energy Society	Outstanding 'Power Engineer Award,' 2012
5	2012	Dr. Shafi K. A.	Cryogenic Engineering	Best paper award in The National Conference on 'Technology Frontiers Of Mechanical Engineering' Comet' 12
6	2014	Dr. K. Bijuna Kunju	IEEE	Outstanding volunteer of the Year 2014
7	2014	Prof. Sunitha Beevi K.	IEEE	Outstanding Student Branch Counselor , IEEE
8	2014	Dr. Dili A. S.	Indian Institute of Architects	State award of excellence in Architecture (Commendation). National Professional Excellency Award
9	2013	Dr. A. Sadiq	(No.1583/Che/2012, The Patent Office Journal 25/10/2013, Page: 27688)	Patent obtained for a power shifting device for regenerative braking system
10	2013	Dr. A .Sadiq	No. 5375/Che/2013, The Patent Office Journal 06/12/2013, Page 30290	Patent obtained for ergonomic pen stand
11	2014	Dr. A. Sadiq	Development of Automatic CG Adjusting Material Handling Device	Patent filed
12	2014	Dr. Rijo Jacob Thomas	Cryogenic Engineering	Publications with more than 50 citations with an <i>h</i> -index of 5. Four international journal publications

				Stood in the 'List of most downloaded articles' of the journal.
13	2015	Dr. S. Ayoob	Civil Engineering	Publications with a total citation count of 756 And <i>h</i> -index of 11 in Scopus. First Publication in 2006 is credited with more than 370 citations in Scopus.

Interdepartmental/ interdisciplinary research projects works are also undertaken by the faculty and students. Details of interdisciplinary/ interdepartmental projects are given in Table 3.4.7

Table 3.4.7 Details of interdisciplinary/ interdepartmental projects

No.	Title of Project	Guided by	Departments involved
1.	Theoretical and experimental studies of different types of soil under frozen condition	Dr.Reebu Zachariah Koshy & Dr. Abdul Rasheed	Civil Engineering & Mechanical Engineering
2.	Acoustic performance of schools in Kerala.-Evaluation of Acoustic comfort in secondary school classrooms with emphasis on reverberation time	Dr. B Premlet & Dr.Asha Latha Thampuran	Physics & Architecture
3.	Study of thermal behavior of pavements and its effect on the environment	Dr.Reebu Zachariah Koshy & Dr. B Premlet	Civil Engineering & Physics
4	Development of modified Alternating current electro coagulation process for the removal of heavy metals from Industrial Effluents	Dr. Ayoob Sulaiman, Prof. Adarsh S, Dr. Priya K. L & Prof. Muhammedali Shafeeque K	Civil Engineering & Electrical and Electronics Engineering

3.5 Consultancy

3.5.1 Give details of the systems and strategies for establishing institute-industry interface?

The institute has an Industry Institute Interaction Cell (IIIC) to coordinate the interaction of the institute with industries. Through IIIC, Professors of this institute visit various industries to identify the potential areas where mutual interaction is possible. The institution takes initiative to make MoU with such industries so that our

students and staff can get training and the industry can take the expertise of our faculty. Our alumni play an active role in this, as they hold key positions in various industries. Their expertise provides confidence to industries about the capability of the institute to deliver.

3.5.2 What is the stated policy of the institution to promote consultancy? How is the available expertise advocated and publicized?

The institute has a policy to encourage and promote consultancy with industries and research organizations and it is documented. With the effective support of the management and faculty, the institute has succeeded to establish MoUs and consultancy with reputed institutes, industries and foreign Universities. The faculty from Civil, Mechanical, Electronics & Communication and Chemical Engineering have undertaken consultancy work. The details about the available research/consultancy facilities in the college and the expertise of various faculty members are listed in the college website. Policy of the institute is to promote institute-industry linkage for long lasting benefit of both parties.

3.5.3 How does the institution encourage the staff to utilize their expertise and available facilities for consultancy services?

The institute has a clear strategy regarding the utilization of facility for consultancy works. The strategy also suggests how the financial side of consultancy works is to be managed. The division of consultancy remuneration and the proper acknowledgment provided to the concerned staff encourage them to undertake consultancy works for the mutual benefit of the institute and the involved organization. Staff members from various departments have consultancy work with major industries and research organizations.

3.5.4 List the broad areas and major consultancy services provided by the institution and the revenue generated during the last four years.

The details of major consultancy services provided by the faculty of the institute are given in Table 3.5.1 and the revenue generated through consultancy services are provided in Table 3.5.2

Table 3.5.1 Details of consultancy work of faculty

No.	Name of Faculty	Areas of Consultancy	Industries to Which Provided
1	Prof. A. Nizad	Structural Design	Government, Semi – Government & Private Organizations
2	Dr. M. Sirajuddin	Structural Design	Government, Semi – Government & Private Organizations
3	Dr. S Suresh	Material Property Testing	Government, Semi – Government & Private Organizations
4	Prof. Mohammed Azim	Valuation of Buildings	Government, Semi – Government & Private Organizations

5	Dr. Jose Prakash M	Cryogenic Combustion	LPSC, ISRO
6	Dr. K.E. Reby Roy	Cryogenic Combustion	LPSC, ISRO
7	Dr. K. B.Radhakrishnan	Investigation of Alleged Gas Leak	KMML, Chavara
8	Dr. K. B.Radhakrishnan	Conduct of Process Safety Audit	KMML, Chavara
9	Dr. K. B.Radhakrishnan	Conduct of Safety Audit	Extraweave, Spinning Mills At Chertala
10	Dr. K. Gopakumar	Embedded Systems	Tata Elxsi, Thiruvananthapuram
		Advanced DSP	Dept. Of Optoelectronics, University Of Kerala
11	Dr. T.A. Shahul Hameed	VLSI/Organic	QUEST, Thiruvananthapuram

Table 3.5.2 Revenue generated through consultancy services

Item	Financial Year - wise Amount (In Rupees)			
	2016 - 17	2015 - 16	2014 - 15	2013 - 14
Consultancy Charges Received	1380443	1065077	2876033	701149
Testing Fee Received	795464	624280	450035	407640
TOTAL	2175907	1689357	3326068	1108789

3.5.5 What is the policy of the institution in sharing the income generated through consultancy (staff involved: Institution) and its use for institutional development?

The policy of the institute in sharing the consultancy income is, 50% with the institute and remaining 50 % is divided among the staff and lab involved. The institute utilizes the amount received through consultancy for enhancing research facilities.

3.6 Extension Activities and Institutional Social Responsibility (ISR)

3.6.1 How does the institution promote institution-neighbourhood-community network and student engagement, contributing to good citizenship, service orientation and holistic development of students?

The institution gives utmost importance to promote the bondage between institution and neighbourhood community. The following are some of the major organizations functioning in the institute for this purpose.

- **National Service Scheme** has been a vital organ in establishing a robust network which has got 110 volunteers at a time to organize social outreach programs. A senior faculty serves as its Program Officer.

- **STEPS (Students of TKMCE for the Empowerment of People and Society)** is a non profitable student organization of TKM College of Engineering. It was established in 2011 with a vision of engendering social responsibility and compassion to the fellow beings in the generation to come. STEPS approaches engineering with the motto “Where Engineering Meets Humanity.
- **Professional Bodies**, like IEEE is actively involved in organizing capacity building of school teachers to deliver science courses effectively in government schools. Apart from this, the bodies provide arena for introducing seamless scope of education to nearby school children.
- **The Integrated Community Service Centre (ICSC)** of the college is assigned the task of streamlining and implementing the projects having social relevance.
- **United Nations Academic Impact –ASPIRE** of the college operates locally within their communities and shares a culture of Intellectual Social responsibility.

3.6.2 What is the Institutional mechanism to track students’ involvement in various social movements / activities which promote citizenship roles?

The important organizations as listed in previous sections follow a systemic approach to attract students into the activities, document and track students’ involvement. The modes of functioning of various forums are provided below:

National Service Scheme (NSS)

It conducts a recruitment drive through which the interested students join the scheme. This is normally followed by an orientation program to put in place the best practices followed and to highlight the remarkable programs conducted in previous years. The program officer assigns students into individual activities and ensures their participation and active involvement. There are review sessions in which the pit falls and achievements are revisited for corrections. Annual reports of the various activities conducted throughout the year should also be submitted at the end of each year. The institution has a college advisory board to approve the yearly activities of the NSS unit. The programme officer is expected to send the monthly, quarterly and half yearly reports in time and conduct the seven days special camp for NSS volunteers.

STEPS

STEPS is a service organization under the college union which also follows similar mechanism in which the College Union organizes campaign for its membership and those who are having affinity in social service and willingness to support helping hand are chosen to carry out its activities. This has a faculty coordinator and student coordinator who collectively make sure that the programs for a year has been charted out and that consistent reviews are made to assess the progress. STEPS make live interference in societal needs like educational support for economically weaker sections, providing shelter to destitute, organizing medical aids, stem cell donation etc.

IEEE

It has a faculty-in-charge to ensure creative contribution of students and to make sure the targeted tasks have been materialized. Recently a workshop was organised by IEEE in the college. About 400 housewives participated in the workshop on Energy Conservation in Domestic Environments. It was jointly organised by Kudumbasree (The famous self help group of women in Kerala), IEEE, Women in Engineering and Power and Energy Society.

UNAI

It has four focal points to guide the students in achieving the UNAI principles. Recently students of TKM College of Engineering, UNAI ASPIRE chapter joined hands together to conduct a health statistics camp, with doctors from National Health Mission (NHM) and Travancore Medical College. It was conducted as a part of ARDRAM mission and 'Edam project' which was an initiative of Government of Kerala and was conducted in Lakhsham veedu colony near Keralapuram which comes under the Kundara constituency. Various experienced doctors including paediatrics and paramedical doctors showed up for providing immense care and support for the primary check-up and about 160 people made use of the camp.

3.6.3 How does the institution solicit stakeholder perception on the overall performance and quality of the institution?

Institute is highly concerted with its stakeholder i.e. students, parents, staff, alumni and industry. The feedback received from alumni, parents, industries and members of the governing council is used to ensure the quality of the institution and the achievement of the objective and mission of the institution. The institution conducts stakeholders meeting regularly and gets feedback. This will be reported to the IQAC for appropriate action.

3.6.4 How does the institution plan and organize its extension and outreach programmes? Providing the budgetary details for last four years, list the major extension and outreach programmes and their impact on the overall development of students.

The extension and outreach programmes of this institute are planned and executed in every academic year, as per the academic calendar. The college organizes a number of outreach activities regularly, which relate to academic, social, cultural, community service etc. All these culminate in building a healthy society contributing to nation development.

The budgetary details of NSS and STEPS are provided Table 3.6.1 and 3.6.2. and data on major extension and outreach programmes are provided in Tables 3.6.3 to 3.6.6 respectively.

Table 3.6.1 Budget allotment for the NSS Activities for 2016-2017 (In Rupees)

No	Activity	Estimate Amount (Rs)
1	Sahaya (Provision for Medicines for the unprivileged)	15,000
2	Ashraya (Tution and Mentoring to students of Orphanages)	5000
3	Environmental Day Programme	1500
4	Blood Donor Day Awareness Programme	1000

5	International Yoga Day	500
6	Help Desk For Freshers	500
7	Anti-Drug Campaign	500
8	Hiroshima Day Remembrance	700
9	Swachh Bharath Mission Activities	5000
10	Jwaala '15 (Observation of Dr. A. P. J. Abdul Kalam's Death Anniversary)	5000
11	Independence Day Celebration	2000
12	Ozone Day Celebration	1500
13	Teachers Day Programmes	1500
14	Onam& Christmas Celebration	3000
15	Literacy Day Campaign	1500
16	NSS Day Programmes	1000
17	World AIDS Day & Awareness Programme	4000
18	Republic Day Celebration	1000
19	Orientation Classes	7,500
20	7 Day Special Camp	80,000
21	Participation In State Camps (Travel + Registration)	3000
22	Organic Farming At Hostel	20,000
23	Blood Donation Camps	1000
24	Activities In Adopted Village	5000
25	Pain & Palliative Care Visits	2000
26	State Level Programme Officer's Training Camp	150,000
27	Tools And Equipment	2000
28	Stationary	1500
29	Farewell to Outgoing Volunteers	6000
	Total	3,28,200

Table : 3.6.2 Budget allotment of STEPS from 2013 onwards (In Rupees)

No	Year	Budget Head	Amount
1	2013-14	Book kit distribution to needy high school students	40,000
2	2014-15	Book kit distribution to needy high school students	60,000
3	2014-15	Kazhcha - Public eye camp at Mekkone School	10,000
4	2015-16	Book kit distribution to needy high school students	1,00,000
5	2015-16	Aardra - Stem cell donors registration camp all over Kerala in 11 campus in various districts	1,00,000
6	2015-16	SUKRITA-Two days camp for the empowerment of differently abled people	5,32,268
7	2016-17	Distribution of Ramzan kits	31600

Table : 3.6.3 Budget allotment of UNAI for 2016-2017 (In Rupees)

No	Year	Budget Head	Amount
1	2016-17	Keralapuram Visit	0
2	2016-17	Edam Project Discussion (Interaction with Minister) Mercy Kuttyamma, Minister of Fisheries and Cashew Industry	2746
3	2016-17	Official Inauguration	1860
4	2016-17	Medical Camp	982
		Total	5588

Table 3.6.4 Activities of NSS

No	Year	Date	Event
1	2012	15/7/2012	Campaign to introduce National Service Scheme
2	2012	18/7/2012	Pre enrolment camp for 3rd semester students
3	2012	20/7/2012 to 21/7/2012	Enrolment camp
4	2012	6/8/2012 to 10/8/2012	'Thanal' Admission help centre and book bank counter
5	2012	14/9/2012	IMA Blood donation camp
6	2012	20/9/2012 to 21/9/2012	Medi Mission blood donation and medical camp
7	2012	2/10/2012	Gandhi Jayanthi and cleanKollam drive
8	2012	13/10/2012	District level personality camp
9	2012	1/12/2012	Red Ribbon Day AIDS awareness program
10	2013	11/3/2013	Elephantiasis awareness campaign
11	2013	06-07-13	Vanamaholtsavam -Tree plantation
12	2013	1/07/13 to 17/07/13	Volunteer campaigning
13	2013	17/08/13 to 18/08/13	Vegetable garden planting
14	2013	25/09/13	Blood donation camp
15	2013	22/12/2013 to 28/12/2013	Special Camp- 'Punarjani.' Restoring hospital equipments and furniture.
16	2014	20/12/2014 to 26/12/2014	NSS special camp, 'SADGAMAYA'
17	2014	01/02/14	Workshop on 'Disaster Management'
18	2014	02/02/14 to 08/02/14	Clean Up Project to clean the premises of the institution
19	2015	21/06/2015	Observed 'Yoga Day'
20	2015	09/07/2015	Pre orientation class and activities
21	2015	03/08/2015	Help Desk and campaign on first year admission day.
22	2015	12/09/2015	Started E-Literacy programme at Balabhavan, Kollam
23	2015	20/09/2015	Conducted socio-economic survey at adopted village

Table 3.6.5 Activities of STEPS

No:	Period	Activity
1	Jan. 2012	Food distribution in Balabhavan, Balikamandiram (Orphanage)
2	Aug. 2012	Independence Day celebration in Balabhavan, Kollam
3	Sept 2012	Official Inauguration of Vijayabheri - Academic coaching for orphans in Ashraya, Balabhavan, Balikamandiram - Continuous programme in all week
4	July 2013	Book kit distribution to needy high school students
5	Sept. 2013	Rally for Anti Drug campaign at Karikode
6	July 2014	Book kit distribution to needy high school students
7	Aug. 2014	Cloth collection from public and students for orphans and needy
8	Oct. 2014	Day for inmates of Gandibhavan, Pathanapuram - Cultural programmes
9	Nov. 2014	Campaign against suicide
10	Jan. 2015	Renovation of District Hospital, Kollam
11	Feb. 2015	Stem cell donor's registration camp at TKMCE
12	Mar. 2015	Kazhcha - Public Eye Camp at Mekkone School
13	July 2015	'One Day One Rupee' Inauguration
14	Aug. 2015	Book kit distribution to needy high school students
15	Aug. 2015	AARDRA - Stem cell donor's registration camp all over Kerala in 11 campus in various districts
16	Oct. 2015	Help Entrance- Free entrance coaching and mock test on Government Higher Secondary Schools.- Continuous programme
17	Feb. 19-21, 2016	SUKRITA 16, Two day camp initiated to aid the empowerment of Differently- Abled people

Table 3.6.6 Activities of UNAI

No:	Period	UNAI Activity
1	03/02/2017	Keralapuram Visit
2	23/02/2017	Edam Project Discussion(Interaction with Minister) Mercy Kuttyamma, Minister of Fisheries and Cashew Industry
3	04/03/2017	Official Inauguration
4	08/04/2017	Medical Camp

These extension activities give awareness to students about the requirement of the society on various avenues. The students will develop a sense of social commitment. The students get good experience and confidence through interaction with various categories of society. This helps them to grab great jobs or start entrepreneurial ventures.

3.6.5 How does the institution promote the participation of students and faculty in extension activities including participation in NSS, NCC, YRC and other National/ International agencies?

The institution has got a highly proactive approach in promoting the participation of students and faculty in extension activities. Credit points are given to the students who actively participate in NSS programme. Certificates of appreciation are also issued to participants and acknowledged by the head of the institution on the exemplary services rendered. The faculty in charge of the NSS gets credit points for the promotion in their career placement. Hence more students are attracted to work as volunteers in NSS.

3.6.6 Give details on social surveys, research or extension work (if any) undertaken by the college to ensure social justice and empower students from under-privileged and vulnerable sections of society?

The institute has made a conscious effort to promote social justice as a value in learning process and administrative interactions. The institution sincerely practices state social affirmative schemes introduced by the government for the upliftment of under privileged communities in the field of higher education. NSS unit has actively participated in the preparation of asset register for Kottankara Grama Panchayat.

Extension Works

➤ Socio Economic Survey

A socio-economic survey among the residents of Kottankara Grama Panchayat was conducted by the NSS unit from 13-10-13 to 20-10-13. The survey was intended to create awareness among the volunteers about the social and economical background of the adopted village. The outcome of the survey is that the students are able to determine the most effective plans that can bring changes in the lives of the people of the village.

(b) PUNARJANI Project: The TKM College of Engineering college NSS unit in association with Kerala State Youth Welfare Board and National Service Scheme (Technical Cell) organizes Punarjani project in Government District Hospital Kollam from 22/12/2013 to 28/12/2013 that aims to restore the damaged equipment and furniture in the Government District Hospital in Kollam. By the end of the camp, volunteers were able to restore about 100 items, as most of them were dumped by the hospital authorities and were waiting to be auctioned as scrap.

(c) SADGAMAYA

The Seven Day NSS Special Camp, 'SADGAMAYA' was organized from 20th December to 26th 2014 at Government LP School, Karikode, Kollam. The various programmes conducted in the school are:

- The creation of a kitchen garden at GLPS Karikode, with help from Krishi Bhavan
- Cleaning the school premises by volunteers
- Painting works of the school
- Painting of blackboards, plumbing works, cleaning of ceilings and repairing of doors were done by volunteers

- Interactive sessions, group discussions, debates and other cultural programmes by the volunteers

(d) Medical camp

A free medical camp was conducted by IEEE-PES student chapter of TKMCE on 26th January 2011 at Dr. K.P. Pillai Memorial Community Hall, Eratakulangara. Around 500 people attended the camp. Since most of the attendees were from the economically backward classes, medicines were provided to the patients free of cost.

The department of Civil Engineering has adopted Murothuruthu Island in Kollam district for implementing engineering solutions for the problems faced by the community including the sinking of foundation of buildings and tidal influx into the human habitats. A group of faculty members from the department has already done reconnaissance survey of the island.

(e) AMRUT(Adal Mission for Rejuvenation and Urban Transformation) Project:

Department of Architecture is actively involved in the renewal of parks and open spaces in Kollam Corporation area. This project is implemented under AMRUT a Government of India project.

3.6.7 Reflecting on objectives and expected outcomes of the extension activities organized by the institution, comment on how they complement students' academic learning experience and specify the values and skills inculcated.

Extension activities conducted by the institute provide academic learning experience, values and skills not only in students but also in faculty. These activities refresh the environment of the institute as well. The major strength of this college is its ability to ensure holistic development of students and make them enlightened citizens. The college maintains equality to all sections of society in terms of providing knowledge and quality education. It aims to maintain modern outlook with contemporary developments. To provide knowledge and quality based education to the students, the institute inculcates moral values, scientific temper and employs state-of-the-art technologies. It aims to pursue excellence towards creating manpower with high degree of intellectual, professional and cultural development to meet the national and global challenges.

Outcome: Participation in various socially relevant activities has resulted in inculcating the feeling of being socially awakened citizens among the students. The students who have been a part of this process have been spreading awareness in the institution. They motivate other students to work for the social upliftment and to develop their organizing capacities, programme co-ordination skills, social skills, communication skill and social responsibility. With these extension activities the students acquire the ability to understand the importance of social justice, equality and right of the citizen to speak against anti-social acts.

3.6.8 How does the institution ensure the involvement of the community in its reach out activities and contribute to the community development? Detail on the initiatives of the institution that encourage community participation in its activities?

The institution makes formal and robust links with the nearby panchayat and corporation for implementing its social reach out programmes. NSS, IEEE and STEPS

are organs of the institution which organizes various extension programmes in coordination with Kottankara Grama Panchayat. The active participation of the local community is being ensured through:

- Announcement of the programme to the public
- Distribution of pamphlets about the programme
- Student campaign to the nearby houses

3.6.9 Give details on the constructive relationships forged (if any) with other institutions of the locality for working on various outreach and extension activities.

The institution is yet to have a formal agreement with surrounding institutions for working on outreach and extension activities. But without any formal relationship NSS and STEPS organised number of extension activities in helping the poor and needy communities by providing medicines, clothes, shelters, books etc to poor people. Blood donation camps are organized several times with the help of reputed hospitals.

3.6.10 Give details of awards received by the institution for extension activities and/contributions to the social/community development during the last four years.

Details of awards received are as follows:

- Certificate of appreciation by Kerala State Youth Welfare Board for the Punarjani project conducted in 2013 by the NSS unit.
- IMA award for the blood donation activities in the year 2015.
- The NSS unit programme officer of the college received AWARD OF EXCELLENCE from KTU PRO VC at the award function held at GEC THRISSUR during the month of March, 2017 for the commendable works the unit has done to create an asset of Rs 33.25 Lakhs for the Punnarjani project conducted in 2016.
- Hon Finance minister DR T.M Thomas handed over the PUNARJJANI SPECIAL APPRECIATION AWARD for the units participated in the project in the year 2016. Principal Dr S AYOOR received the memento from the minister for the same.
- The NSS units of the college grabbed 3 awards during the STATE ANNUAL MEET held on 7th and 8th JULY 2017 at VIDYA INSTITUTE OF SCIENCE AND TECHNOLOGY . Ms Soumya Madanan (C5) received the award for the BEST NSS VOLUNTEER . NSS unit 174 also received the SPECIAL MENTION AWARD. THE awards were distributed by HON AGRICULTURE MINISTER V S SUNIL KUMAR . Moreover, NSS TKMCE was also awarded a SPECIAL APPRECIATION AWARD for conducting a 3 day DISTRICT LEVEL YOUNG ENERGY AUDITORS WORKSHOPS, NEST 2016 during April 2016.
- During the event of announcing Kerala as a TOTAL ELECTRIFIED STATE, IEEE TKMCE was honoured by minister for Electricity Sri M.M MANI, for taking the initiative to electrify 28 houses in the village of AYOOR.

3.7 Collaboration

3.7.1 How does the institution collaborate and interact with research laboratories, institutes and industry for research activities. Cite examples and benefits accrued of the initiatives - collaborative research, staff exchange, sharing facilities and equipment, research scholarships etc.

The institute tries to enhance collaboration with research laboratories, institutes and industry for various research activities. It has collaboration with Kerala Minerals & Metals Ltd. (KMML) Kollam, Steel Industrials Kerala, Ltd. (SILK), Thrissur, Nirmithi Kendra, Kollam, Liquid Propulsion Systems Centre, ISRO, Syned Bioscience Pvt. Ltd, Petrocil Engineers and Consultants Pvt. Ltd., Bipha Drug Laboratories Pvt. Ltd., Kottayam, Tata Elxsi, Thiruvananthapuram, QUEST, Thiruvananthapuram. Institution is on the constant endeavour for long-lasting ties with them for mutual benefit.

The faculty uses the laboratories of the collaborating industries, institutes like IITs and NITs. Industries also use the expertise of faculty and institute lab facilities for their R&D. It continuously makes an effort to be in-touch with people concerned through direct and indirect contact and conferences. Students are encouraged to visit industries and interact with them to identify potential problems in the industries. Such problems identified can be addressed by researchers of the institute. Students are required to complete four industrial visits as part of their curriculum. Students will be exposed to different processes and operations in the industry. On completion of the industrial visit, the students are required to submit a training report and will be evaluated. Students are also encouraged to participate in industrial orientation programme periodically, which are engaged by invited experts, including our alumni from industries. Some of the major industries where students are getting chance to visit are listed below:

- Kerala Minerals and Metals, Chavara.
- Mercedes Benz, Bangalore.
- Cochin Shipyard, Kochi
- HMT, Kalamassery
- K.S.R.T.C, Regional Workshop, Thiruvananthapuram.

Few of the collaborative research ventures tabulated in Table 3.7.1

Table 3.7.1 Collaborative research (In Rupees)

No.	Title Of Project	Investigators	Project Amount (Lakhs)	Duration
1	Analysis of Film Cooling in a Semicryogenic Rocket Engine (Including the Effect of Chemical Reaction), ISRO, Thiruvananthapuram	Dr. M. Jose Prakash Dr. K.E. Reby Roy Prof. T.S. Krishnakumar	9.65	2009-2011

2.	Numerical Analysis of Regenerative Cooling Using Helical Channels In a Semi Cryogenic Rocket Engine, ISRO, Thiruvananthapuram	Dr. M. Jose Prakash Dr. K.E. Reby Roy.	9.45	2011-2014
3.	Development of Emissivity Measurement Development Setup Department of Atomic Energy	Dr. K.A. Shafi Prof. Mathew Skaria Dr. Rejo Jacob Thomas	22.33	2014-2015
4	Combustion Modelling of Semi-cryo pre burner	Dr. Jose Prakash. M	6.38	2016-2017
5	Design and development of scaled down version capacitance type void fraction measurement sensor for two phase flow cryogenic fluids. Dept. of Atomic Energy	Dr. K.A. Shafi Prof. Mathew Skaria Dr. Rijo Jacob Thomas	25.15	2017-18

3.7.2 Provide details on the MoUs/collaborative arrangements (if any) with institutions of national importance/other universities/ industries/Corporate (Corporate entities) etc. and how they have contributed to the development of the institution.

The institution has interaction with R& D organizations and industries to carry out research and consultancy projects. The students are involved in these activities by engaging in the research work of the organization. The ongoing consultancy projects include, the Memorandum of Understanding (MoU) with Liquid Propulsion System Centre (LPSC), Valiamala, Indian Space Research Organization (ISRO), Department of Space, and Government of India. The facilities available in the Nanotechnology Research Centre are utilized by many industries/organizations such as National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram and Larsen & Toubro etc. The faculty members render assistance to R&D organizations and industries through technical advice and consultancy services. Students are also associated with such activities. The details on the MoUs/collaborative arrangements with other institutions and contribution to the development of this institution are provided in the Table 3.7.2

Table: 3.7.2 MOUs/collaborative arrangement and contribution to the institute

No	Name of industry having Mou/Agreement	Contribution of industry towards development of institution
1	Kerala Minerals & Metals Ltd(KMML), Kollam	Students can do internship/training in these companies to get familiar with the different methods, equipment and materials used for construction.
2	Steel Industrials Kerala Ltd. (SILK), Kozhikode	
3	Nirmithi Kendra, Kollam	
4	Liquid Propulsion Systems Centre , ISRO	Experts from these industries interact with students about the engineering challenges encountered. Help the students to understand the applications of theoretical concepts
5	Petrocil Engineers And Consultants Pvt. Ltd., Varkala	Infrastructure development, Interaction with industry and joint publications.
6	TCS	Providing facilities for industrial training programmes and internship and expert assistance
7	Tata Elxsi, Thiruvananthapuram	Training and placement
8	QUEST, Thiruvananthapuram	Project expert lecture visit
9	IRE, Chavara	Project expert lecture visit
10	Kerala State Council For Technology And Environment	Valuation of building and other structures in the proposed sites for mining
11	District Industries Centre, Kollam	Concrete testing facilities in the institution
12	PWD, Kerala	For setting up concrete testing centre
13	BSNL Kollam	
14	Department Of Harbour Engg., Kollam	
15	KSEB, Kollam	
16	KEL, Kundra	
17	NTPC, Kayamkulam	
18	ANERT, Thiruvananthapuram	
19	Energy Management Cell, Kerala	
20	Airport Authority Of India, Thiruvananthapuram	While associating with industries/service providers for their testing or commissioning, it is beneficial to the student community to be aware about the real field application and the remuneration can be utilised for laboratory development
21	ITI Ltd Palakkad	Industrial training
22	Department Of Atomic Energy	Industrial visit
23	Hindustan Latex Thiruvananthapuram	Consulting research project
24	Dooradarsan Kendra, Thiruvananthapuram.	Industrial visit
25	SFO Technologies Pvt Ltd.	Industrial visit
26	Light Logics, Thiruvananthapuram	Industrial visit
27	IIT	Faculty, for their research work use the

28	NIT	facilities of different IITs and NITs which lead to technology interchange
29	IISc Bangalore	
30	Mercedes Benz, Bangalore.	Training
31	Cochin Shipyard. Ernakulam	Training
32	HMT, Kalamassery	Training

3.7.3 Give details (if any) on the industry-institution-community interactions that have contributed to the establishment / creation/up-gradation of academic facilities, student and staff support, infrastructure facilities of the institution viz. laboratories / library/ new technology /placement services etc.

The institution has interaction with companies like IRE Chavara, KMML Chavara. Faculty and students do project works in such industries. Laboratory facilities, especially in the department of Civil engineering are used by the nearby industries. Concrete Lab, Material Testing Lab, Geotechnical Lab, Transportation Lab etc., of this department have strong interaction with industries such as SILK, KSEB, BSNL, PWD.

The laboratory facilities in Chemical Engineering Department are used for testing purity of drinking water. Department of Electrical and Electronics Engineering offer facilities for testing high voltage equipment. CFD Lab of Department of Mechanical Engineering has two ongoing research and consultancy project with Liquid Propulsion Centre (LPSC), ISRO, Thiruvananthapuram. The fund generated by such interaction is used for developing infrastructure and testing facilities in the institute.

3.7.4 Highlighting the names of eminent scientists/participants who contributed to the events. Provide details of national and international conferences organized by the college during the last four years.

Details of international conferences and eminent personalities visited the campus and contributed during the last four years are tabulated in Table 3.7.3

Table 3.7.3 Details of the eminent researchers contributed in conferences

Date	Name And Address Of The Eminent Researchers.	Activity	Event
CIVIL ENGINEERING			
Dec.2011	Dr. Narayanan S. P. Associate Professor, University Technology, Petronas, Malaysia	Keynote Address	International Conference on Modelling and Simulation In Civil Engineering (ICMSC'11)
	Dr. K. P. Jaya Associate Professor, Dept. Of Civil Engineering, Anna University, Chennai	Keynote Address	
	Mr. N. P. Kurian Director, CESS	Keynote Address	
	Mr. Peter Stemberk, Professor, Czech Technical University, Prague	Keynote Address	

	Mr. Erland Ramussen, Professor, Czech Technical University, Prague	Keynote Address	
Dec.2013	Prof. Muhd Fadhil Bin Nuruddin Universiti Teknologi Petronas, Bandar Seri Iskandar, Perak, Malaysia	Keynote Address	International Conference on Modelling and Simulation In Civil Engineering (ICMSC'13)
	Dr. Robinson R.G. Professor, IIT Chennai	Keynote Address	
	Dr. Lakshman Nandagiri Dean (Planning & Development) Professor Dept. Of Applied Mechanics, NIT Surathkal	Keynote Address	
	Vinu U. Unnikrishnan, Ph.D. Assistant Professor, Aerospace Engineering And Mechanics, The University Of Alabama	Keynote Address	
	Premkumar, Ph.D, Engineering Specialist &NSERC, R&D Fellow, Worleyparsons Group Of Companies, Canada	Keynote Address	
	Dr. Ajit Haridas Chief Scientist & Head, Process Engg.& Environmental Technology Division, NIIST, CSIR, Thiruvananthapuram	Keynote Address	
Dec. 2015	Dr. Gangan Prathap. Honorary Professor, APJ Technological University, Kerala	Keynote Address	International Conference on Modelling and Simulation In Civil Engineering (ICMSC'15)
	Dr. P. K. Aravindan Former Professor, IIT Chennai	Keynote Address	
	Dr. Devadas Menon Professor, IIT Chennai.	Keynote Address	
	Dr. K.C. Iyer Professor, IIT Delhi	Keynote Address	
	Dr. Tom V Mathew Professor, IIT Mumbai.	Keynote Address	
	Dr. Samson Mathew Professor, NIT Trichy	Keynote Address	
	Dr. Sreedevi Director, NATPAC, Thiruvananthapuram	Keynote Address	
	Dr. P Basak, Visiting Professor, NIT Jamshedpur	Keynote Address	
	Dr. Zulkifli Bin Yasop University Teknolgi Malaysia	Keynote Address	

MECHANICAL ENGINEERING			
Dec. 2015	Sri. S. Somanath Director, LPSC, ISRO	Inaugural Address	International Conference On Aerospace and Mechanical Engineering (ICAME'15)
	Dr. Luigi Serio, Scientist, CERN, Switzerland	Keynote Address	
	Dr. Arend Nijhuis, University Of Twente, Netherlands	Invited Talk	
	Dr. Rajinikumar Ramalingam, KIT, Germany	Invited Talk	
	Dr. Muthukumar, IIT, Guwahati	Invited Talk	
	Dr. Jung Kyung Kim, Kookmin University, S.Korea	Technic al Session	
ELECTRONICS AND COMMUNICATION ENGINEERING			
Aug.2014	Dr. Ganapati Panda, Professor, School Of Electrical Science, IIT Bhubaneswar.	Keynote Address	International Conference On Signal & Speech Processing(ICSSP'14)
	Dr. Hemant A. Paul, Associate Professor, DA-IICT, Gandhinagar.	Session Chair	
	Dr. Kunal N. Chaudhury, Assistant Professor, Department Of Electrical Engineering, Iisc Bangalore.	Session Chair	
	Dr. Manjunath V. Joshi, Professor, DA-IICT, Gandhinagar.	Session Chair	
	Dr. Peri Bhaskararao, Professor, IIIT, Hyderabad.	Session Chair	
	Dr. Samuel N. Mathew, Executive Director, National Institute Of Speech & Hearing, Thiruvananthapuram	Session Chair	
	Dr. S. R. M. Prasanna, Professor, Department Of EEE, IIT, Guwahati	Session Chair	
	Dr. Sunil Kumar Kopparapu, Senior Scientist, Innovation Laboratory Of Tata Consultancy Services.	Session Chair	

Sept 2016	Dr.SAMUEL N MATHEW,Director, National Institute of Speech & Hearing (NISH), Trivandrum	Keynote Address	International Conference On Signal & Speech Processing(ICSSP'1 6)
	Dr. PRABIR KUMAR BISWAS,Professor & Head, Dept. of Electronics & Electrical Communication Engg, IIT Kharagpur	Keynote Address	
	Dr. ASIM BANERJEE Professor, Dhirubai Ambani Institute of Information & Communication Technology	Keynote Address	
	Dr. KISHORE KUMAR T, Associate Professor& Head of Dept. of ECE, NIT, Warangal	Keynote Address	
	Dr. SOMA BISWAS Assistant Professor, Indian Institute of Science, Bangalore	Keynote Address	
	Dr. SIBI RAJ B PILLAI Associate Professor, Dept. of Electrical Engineering, IIT Bombay	Keynote Address	
	Dr. DEEPAK PADMANABHAN Faculty, Centre for Data Sciences and Scalable Analytics, The Queen's University of Belfast, United Kingdom	Keynote Address	
COMPUTER SCIENCE AND ENGINEERING			
June 2014	Mr. Sanjay Burman, Director, Centre For Artificial Intelligence & Robotics, DRDO, Bangalore	Key Note Address	International Conference On Advanced Computing Communication In Information Science (ACCIS'14)
	Dr. Veni Madhavan, Professor IISC Bangalore	Session Chair	
	Dr. Tirumala K. Ramesh, Professor, Amrita Vishwa Vidyapeetham, Bangalore	Session Chair	
	Dr. Lakshmi Narasimhan, Professor, Dept. Of Computer Science, East Carolina University, USA	Session Chair	

	Dr. M .R. Kaimal, Chairperson, Dept. Of Computer Science, Amrita Viswavidyapeetham University, Kollam	Session Chair	
	Dr. S. D. Madhukumar, Associate Professor, Dept. Of CSE , NIT Kozhikode.	Session Chair	
	Dr. Priya Chandran, Professor, Dept. Of CSE NIT Kozhikode	Session Chair	
	Dr. R. Krishnamoorthi, Professor, Dept. Of CSE Anna University, Chennai	Session Chair	
	Dr. J. Latha, Director Of Technical Education, Govt. Of Kerala	Session Chair	
CHEMICAL ENGINEERING			
Oct.2014	Prof. (Dr.) V.N. Rajasekharan Pillai Executive Vice President And Principal Secretary, Science And Technology Department, Government Of Kerala	Inaugur ation	International Conference On Advances In Chemical Engineering & Technology (ICACE TKM '14)
	Prof. (Dr.) M.S. Ananth Distinguished Professor, IIT Mumbai	Keynote Address	
	Mr. T. P. Sreenivasan Vice Chairman And Executive Head, The Kerala State Higher Education Council, Government Of Kerala	Chief Guest	
	Dr. Sriram Devanathan Professor, Amrita University, Coimbatore	Session Chair,	
	Dr. Giridhar R. Nair Former Professor, Waikato University, Newzealand	Session Chair	
	Dr. M.L.P. Reddy Chief Scientist & Head, Material Science And Technology Division, NIIST, Thiruvananthapuram	Session Chair	
	Prof. (Dr.) Fawzi Banat Professor & Acting Chair, Chemical Engg. Dept., Petroleum Institute, Abu Dhabi	Invited Lecture	
	Dr. John Tharakan Professor, Chemical Engineering, Howard University, Washington, USA	Invited Lecture	

	Prof. (Dr.) A.R. Balakrishnan Professor, Department Of Chemical Engineering, IIT Chennai	Invited Lecture	
	Prof.(Dr.) Murugesantanabalan Professor, Chemical Engineering Department, Universititeknologi, Petronas, Malaysia	Invited Lecture	
	Prof. (Dr.) G. Sugilal, Scientist & Head, PSDS & Professor, Bhabha Atomic Research Centre (BARC), Mumbai	Invited Lecture	
	Prof (Dr.) C.M. Narayanan Professor, Department Of Chemical Engineering, NIT, Durgapur	Invited Lecture	
	Prof. (Dr.) Vivek Polshettiwar Professor, Nano-Catalysis Laboratory, Dept. Of Chemical Sciences, Tata Institute Of Fundamental Research (TIFR), Mumbai	Invited Lecture	
ELECTRICAL AND ELECTRONICS ENGINEERING			
Dec.2011	Prof. Joshua Ernest: Professor And Head, Department Of Electrical And Electronics Engineering, (NITTTR), Bhopal	Keynote Address	International Conference On Smart Grid Technologies India (ISGT-INDIA-2011)
	Dr. Fareed M. Zedan, Former Governor, Electricity & Co-Generation Regulatory Authority, Kingdom Of Saudi Arabia.	Keynote Address	
	Dr. Lalit Goel Asia-Pacific Representative On The IEEE PES Governing Board, Professor, School Of Electrical & Electronic Engg., Division Of Power Engineering, Nanyang Technological University, Singapore	Keynote Address	
	Prof. H. P. Khincha, IISc, Bangalore.	Keynote Address	
	Prof. Dr. R. Sreeramkumar, Professor And Head, Department Of Electrical Engineering, National Institute Of Technology, Kozhikode	Keynote Address	
	Prof. V. K. Damodaran, General Chair, ISGT India	Keynote Address	
	Dr. Madhu Mangal, Former Director CEDT, Mumbai	Keynote Address	

	Prof. Dr. Mini S Thomas, Professor, Department Of Electrical Engineering, Jamia Milia Islamia University, Delhi	Keynote Address	
	Dr. Rahul Tongia, Smart Grid Forum, Delhi	Keynote Address	
Aug.2014	Dr. P.S. Nagendra Rao, IISC, Banglore	Keynote Address	International Conference On Emerging Trends In Electrical Engineering (ICETREE)
	Dr. K.R. Rajagopal, IIT, Delhi	Keynote Address	
	Dr. Srikanth Prabhu, Manipal University	Keynote Address	
	Dr. Achuthsankar S. Nair, Dept Of Bioinformatics, Government Of India	Keynote Address	
	Dr. V. K Damodaran, Chairman, Centre For Environment & Development, Thiruvananthapuram	Keynote Address	

3.7.5 How many of the linkages/collaborations have actually resulted in formal MoUs and agreements? List out the activities and beneficiaries and cite examples (if any) of the established linkages that enhanced and/or facilitated:

Twelve linkages / collaboration have actually resulted in formal MoUs. Details are given in Table 3.7.4

Table: 3.7.4 Details of formal MoUs

SI No	INDUSTRY/ ACADEMIA	OBJECTIVES	YEAR OF SIGNING	DURATION
1	KOOKMIN University, Seoul, Korea	To develop future potential collaborative research and student exchange programs.	30-9-2016	5 Years
2	University of Twente, Netherlands	To research on the behaviour of superconducting materials by exchange of knowledge and expertise between the two parties	01-06-2016	2 years
3	Liquid Propulsion Systems Centre, ISRO, Trivandrum	To generate a CFD model for capturing flow, thermal profile and combustion features of a pre-burner of semi-cryo engines with technical data support from LPSC	10-05-2016	6 months, extendable up to 12 months

4	QuEST Global Engineering Services Pvt Ltd	To provide contemporary technical exposure for students with cooperation from TKMCE	05-04-2016	1 year, renewable with mutual consent
5	TCS Ltd	To make students and teachers aware of new technological developments by conducting workshops, FDPs & student internships and in return TKMCE will support TCS in its learning, hiring and research requirements.	18-03-2016	3 years from 01-04-2016
6	Ospyn Technologies Private Ltd.	Sharing of facilities and expertise for advanced education and research, opportunity for students and research scholars for industrial training, training of employees of Ospyn Technologies	02-02-2016	5 years, renewable with mutual consent
7	Petrocil Engineers & Consultants Pvt Ltd	To share their expertise & knowledge with each other and take up projects based on these interactions, To provide internships for students	25-01-2016	3 years, renewable with mutual consent
8	Kreara Solutions Pvt Ltd	To effectively share the facilities and expertise for improving the capabilities for advanced education & research with collaboration between the two parties	26-03-2015	5 years, renewable with mutual consent
9	Kerala Minerals & Metals Ltd (KMML)	To effectively share the facilities and expertise for improving the capabilities for advanced education and research and facilitate academic & research interactions among employees of both industries	16-05-2014	-
10	Nirmithi Kendra, Kollam	To carry out programmes for promoting industry-academic interactions	14-05-2014	

11	Tata Elxsi Ltd	To develop & foster strategic linkages between TKMCE and TEL and thereby assist students and enhance their knowledge about latest technology in which TEL is involved.	19-03-2014	2 years, renewable with mutual consent
12	NeST	To effectively share facilities and expertise for improving the capabilities of education and research	04-03-2014	3 years, renewable with mutual consent
13	Steel Industries Kerala Ltd (SILK)	To carry out programmes for promoting industry-academic interactions	10-02-2014	
14	Indian Rare Earths Ltd, Chavara, Kollam	Civil Engineering Dept. shall undertake valuation of buildings & structures in the proposed area for mining activities and IRE Ltd will bore the expenses of the valuation team	09-04-2012	
15	Kerala State Council For Technology and Environment	To provide assistance in the form of grants to scientists & technologists for scientific/research work with particular relevance to state of kerala on the environmental problems & issues	25-11-2011	3 years
16	Liquid Propulsion Systems Centre, ISRO, Trivandrum	Numerical analysis of Regenerative cooling using helical channels in a semi-cryo Rocket engine with technical data support from LPSC	11-11-2011	18 months, extendable up to 30 months
17	Liquid Propulsion Systems Centre, ISRO, Trivandrum	Analysis of film cooling in a semi cryo rocket engine including the effect of chemical reaction with support from LPSC	20-03-2009	18 months, extendable up to 30 months
18	District Industries Centre, Kollam	To set up a testing centre and research facilities with an available grant of 16.38 lakhs at TKMCE	28-03-2007	
19	Kerala State Electricity Board Ltd, Trivandrum & IEEE Power and Energy Society, Kerala Chapter.	To study the problems faced by KSEB and suggest suitable solutions after research	Drafted, Pending Signature	

20	Agency for Non-conventional Energy & Rural Technology and IEEE Power and Energy Society, Kerala Chapter.	To study the problems faced by the agency and suggest suitable solutions after research	Drafted, Pending Signature	
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a) Curriculum development/enrichment:

The college, as it is affiliated to the University, follows its curriculum and syllabus of the University. However to supplement and enrich the curriculum, experts from these industries visit our institute to give lectures on specific topics to students and faculty. Experts from industries are also members in curriculum development workshops. The Institute and Industries work together to conduct seminars, workshops and conferences in the latest subject areas of common interest, for skill development and continuing education programmes of staff and students of the institute. The institute has formal MoU with industries like TCS, QUEST etc., to achieve the objectives.

b) Internship/ On-the-job training:

Yes. the college has facilities of Internship / On-the-job training. The institution organizes industrial visit/field work/ educational tour regularly. The students do project work using the facilities of companies like KMML, ISRO, IRE. The beneficiaries are faculty, students and the industry.

c) Summer placement: Nil

d) Faculty exchange and professional development: Nil

e) Research: Collaborative research with research centers like IISc and ISRO give mutual benefits.

f) Consultancy:

Faculty from various departments do consultancy work with reputed industries in their field of experience, which are mentioned in the Table 3.5.1

g) Extension: Institute's extension activities are mainly taken up by agencies NSS, STEPS, and professional bodies like IEEE, which are mentioned in section 3.6

h) Publication: Most of the faculty have many collaborative works with research organization and published papers in association with these organizations in reputed journals.

i) Student Placement: Every year, reputed organizations conduct recruitment in the campus. More than 80% of eligible students get placements with good package in India and abroad. TCS has placed MoU with the institution to offer the "TCS–Sangam", a package of TCS Academic Interface Programme. Details of the activities are given in the Table 3.7.5

Table 3.7.5 The items included in the MoU with TCS

No	Item Description	Target per year
1	Workshops for students	4
2	Faculty Development Programmes	2
3	Best Student Award	1
4	Best Student Project Awards (Maximum of 4 students in the team)	1
5	Sponsorship of events, technical or social, that are mutually beneficial	2
6	Internship (with stipend)	For ten percentage of the students offered placement in TCS (half of these students would need to do their project in their campus itself).

j) Twinning programmes: Nil

k) Introduction of new courses: Nil

l) Student exchange: Nil

m) Any other: Nil

Faculty are members of syllabus revision committee of the University. They are actively participating for including new trends according to the requirement of the industry.

3.7.6 Detail on the systemic efforts of the institution in planning, establishing and implementing the initiatives of the linkages/collaborations. Any other relevant information regarding Research, Consultancy and Extension which the college would like to include.

The institute gives great importance to develop collaborations with industries, research organizations and renowned institutions. The effort for collaboration starts with formal talk by faculty of this institute with the collaborating firm and tries to identify the fields, in which collaborations are possible. Another method of building collaboration is through the links that are developed by the Professors while pursuing their higher qualifications in highly reputed national institutions. Alumni of the institute are great strength in developing collaboration with reputed and highly established firms. These systemic effort by the institute resulted in many MoUs, consultancy works and collaborative research.

CRITERION IV: INFRASTRUCTURE AND LEARNING RESOURCES

4.1 Physical Facilities

4.1.1 What is the policy of the Institution for creation and enhancement of infrastructure that facilitate effective teaching and learning?

- The policy of the institute infrastructure is formulated and implemented by an infrastructure committee constituted by the management.
- The committee ensures a uniform and balanced distribution of space and resources to all categories/departments. The committee also provides and maintains necessary amenities for the staff and students in a time bound manner.
- The committee executes the planning and design of classrooms, faculty rooms, labs etc., by complying with the standards stipulated by AICTE.
- For addressing the common infrastructural facilities of the institute, requirements of all the departments and campus landscaping, twelve sub-committees have been formulated. These committees design and supervise the execution of the required infrastructure facility of the campus.
- The infrastructure required for each department is planned and placed in close proximity (zoned together) to ensure efficient teaching-learning process.
- Develop projects for enhancing the quality of teaching learning process.

4.1.2 Detail the facilities available.

- a) **Curricular and co-curricular activities:** Classrooms, technology-enabled learning spaces, seminar halls, tutorial spaces, laboratories, abotanical garden, an animal house, specialized facilities and equipments for teaching, learning and research etc., are available. The facilities and equipment for teaching, learning and research are given in table 4.1.1

Table 4.1.1 Facilities and equipment for teaching, learning and research

No.	Facility	No.s/Specialties
1	Class rooms	Total 63 nos. <ul style="list-style-type: none">● UG-48 nos.● MCA-3 nos.● PG -14 nos.
2	Technology Enabled Learning Spaces	<ul style="list-style-type: none">● Class rooms are provided with high speed WLAN Connection, Multimedia Projector and Electronic Podium.● Entire campus has Wi-Fi connectivity.
3	Seminar halls/Conference facility	6

4	Tutorial spaces	Most of the labs in all the departments have facility for conducting tutorial sessions. This is used along with free class rooms available as per time table.
5.	Labs including computer labs	Civil – 11 Mechanical – 13 Electrical – 8 Electronics – 10 Computer science - 5 Chemical – 7 MCA – 2 Architecture – 3 Basic Sciences – 2
6.	Specialized facilities and equipment for teaching, learning and research	<ul style="list-style-type: none"> ➤ QEEE(Quality Enhancement in Engineering Education) ➤ Refrigeration & Cryogenic Engineering Lab. ➤ Nano Fluid Lab. <ul style="list-style-type: none"> ● Brookfield Viscometer ● KD2 Probe ● Facility for preparing Nanoparticles ➤ CFD Lab. (High End Computer Workstations, ANSYS fluent, ANSYS Mechanical, ANSYS Multi physics, Lab View & Mat Lab) ➤ CAD Lab. (SOLID WORKS & ABAQUS Software) ➤ Induction furnace & Heat treatment furnace in Production Process Lab. ➤ Coordinate measuring Machine ➤ CNC Machine ➤ Image processing Research Lab <ul style="list-style-type: none"> ● Hi-resolution Color vision camera (1392x1040) MATLAB R2013b Tool Kit Software: ➤ Very Large Scale Integration Lab(VLSI Lab): <ul style="list-style-type: none"> ● CST (Computer Simulation Tool) Studio Suite Version 2014, RF and Microwave Simulation Tool for Antenna design. ● OPTI Systems Version 12.2 (Optical Link Simulation Tool) for the design of Optical Communication System ● Spectrum Analyzer ● RF Communication Trainer Kit ➤ Structural Dynamics Lab <ul style="list-style-type: none"> ● Motor driven Horizontal shake table with instrumentation ● STAAD Pro V8i (Structural Analysis and Design Professional Global Package) ● NISA Software ● Primavera P6 enterprise ➤ Concrete Lab: <ul style="list-style-type: none"> ● Electric oven, Electric furnace ➤ Geotechnical Lab

		<ul style="list-style-type: none"> ● MIDAS GTS software ● Material for mould fabrication, Extruder ➤ Environmental Engineering lab <ul style="list-style-type: none"> ● Ph Meter Systronic Digital Model MKV I ● Water Distillation Unit ● Water Quality Analyser ● UV VIS Double Veam Spectrometer ● Flame Photometer Model 128 ➤ Transportation Lab <ul style="list-style-type: none"> ● Aimil Compression Testing Machine 3000 KN ● California Bearing Ratio Test Apparatus ● Marshall Apparatus ● Ductility Testing Machine ➤ Network Research Lab <ul style="list-style-type: none"> ● Quality Network Simulator ➤ Chemical Technology and Environmental Lab <ul style="list-style-type: none"> ● Particle Size Analyser ➤ Power System Lab <ul style="list-style-type: none"> ● Impulse Test set 280 KV ● Digital Relay SVERKER 760, ● SAKOVA Analogue Relay Test Kit, ● CB and Overload Relay test kit, ● DC HIGHPOT 120KV, ● FLUKE power quality analyzer ● Isolation transformer ● MI POWER, POWER WORLD, ETAP and PSCAD Software ➤ Acoustics Lab <ul style="list-style-type: none"> ● Hand held Analyser with sound level meter(Model 2250) ● Reverberation software Brual and Kjeaar, ● Frequency Analysis software type BZ- 7223 ● Qualifier light software type 7831 ● Omni Power Omni directional Sound Source ● Audio Power Amplifier, Stereo gain input 0- 30 db in 60 steps Type 2734 ● Digital Laser Ranger Finder (Bosch DLE 40) ● Noise Dose Meter Type 4444
7.	Department libraries	Each department has its own library with good collections of books and journals.
8.	Common facility	<ul style="list-style-type: none"> ● CCF (Central Computing Facility) ● Innovation and Entrepreneurship Development Cell (IEDC) ● Auditorium ● Central Library ● Language Lab. ● Internet Facility

Class Rooms: Provided with good ventilation, high speed WLAN connection, multimedia projector, white/black/green board, notice board and electronic podium.

Seminar Halls / Conference Halls: The Jubilee hall, PTA hall, Lecture theatre and APJ Hall are air conditioned, well furnished with most modern audio-visual systems. The audio visual facilities are digitally enhanced and designed for effective presentations with excellent auditory reception. Jubilee hall has a seating capacity of 250, the APJ hall has 180, the PTA hall has 90 and the lecture theatre, 100. The other seminar halls are well furnished with LCD projector and audio visual aids.

Central Computing Facility (CCF): Central Computing and Browsing Centre facilities can be utilized by staff and students. The Centre provides the latest state-of-the-art computers with browsing facilities. The Centre functions on all working days and Saturdays from 9 a.m. to 8 p.m.

IEDC: The institution has an Innovation and Entrepreneurship Development Cell (IEDC) which organizes entrepreneurship awareness programs for the students. The efforts of the institution and its impact can be seen in the swift setting up of a very professional workspace, the IEDC room and Makers Space for young entrepreneurs. The other labs and workshop facilities can also be utilized by the students for their non-academic projects.

IEDC is divided into three sections:

1. Makers Forum - Revolves around Maker's Space having all the facilities and resources required for a student to experiment on innovative ideas and make use of in their DIY (Do It Yourself) projects.
2. Innovation and Research Cell-Fosters innovation and research among the students by conducting brain storming sessions to evolve solutions for challenging design issues in the practical domain.
3. Open Source Software Community- A collaboration of IEDC and young free software enthusiastic developers in the college. The main objective is to provide a platform for students to learn more about the systems, to make them feel comfortable in handling the free and open source software by promoting code literacy and open source software within and outside the college.

Facilities are being set up for a Technology Business Incubator (TBI) for students.

Central library: Central library has a collection of more than eighty five thousand books and one hundred periodicals, e-resources of 3000 e-journals and 4600 e-books, 5400 NPTEL videos and 1500 CDs.

Language Lab: The language lab is provided with ETNL software which helps the students to improve their communication skills. Students can utilize the lab facilities beyond regular working hours.

Internet Facility:

- 100 Mbps high speed leased line facility along with a 10 Mbps broad band connection.
- 24x7 Wi-Fi facility in the campus.

QEEE: The College is one among the 100 Engineering Colleges participating in the Quality Enhancement in Engineering Education (QEEE) Programme of MHRD, Government of India. After having successfully completed Phase I and Phase II, Phase III of the programme started in January 2015. Under this programme, facilities have been arranged for live classes to be conducted by professors of various IITs. The main goal of the programme is to utilise high quality pedagogical resources to enhance learning in a wider student community.

b) Extra-curricular activities: Sports, outdoor and indoor games, gymnasium, auditorium, NSS, NCC, cultural activities, public speaking, communication skills development, yoga, health and hygiene etc., are some of the facilities provided.

The details of Sports, Outdoor and Indoor Games and Gymnasium are given in Table 4.1.2 below.

Table 4.1.2 Details of Sports, Outdoor and Indoor Games and Gymnasium

No	Facility	No	Activity
1	Football Ground	1	<ul style="list-style-type: none"> ● George Joseph Memorial Inter-Collegiate Football Tournament (Commenced In 1966) ● Kerala University Inter-Collegiate Football Championship
2	Cricket Pitch	1	<ul style="list-style-type: none"> ● Inter-Semester Tournaments
3	Basketball Court	1	<ul style="list-style-type: none"> ● Asokan Memorial Inter-Collegiate Basketball Tournament (Commenced In 1968).
4	Shuttle Badminton Court (Indoor)	1	<ul style="list-style-type: none"> ● All Kerala Inter-Collegiate Badminton Championship, ● Kerala University Inter-Collegiate Shuttle Badminton (Men And Women) Championship
5	Volleyball Court	1	<ul style="list-style-type: none"> ● All Kerala Inter-Collegiate Volleyball Championship ● Kutty Krishnan Memorial Inter- Collegiate Volleyball Tournament (Commenced In 1967).
7	Tennis Court	1	<ul style="list-style-type: none"> ● TKM Open Tennis Tournament ● Kerala University Inter-Collegiate Tennis (Men And Women) Championship
8	Table Tennis Hall	1	<ul style="list-style-type: none"> ● Inter Semester Tournaments
9	Multi Station Gymnasium	1	<ul style="list-style-type: none"> ● Best Physique Competition
10	Judo Arena		<ul style="list-style-type: none"> ● Kerala University Judo Championship 2015(Men And Women)

Sports meet, inter semester tournaments and coaching camps are conducted every year. The above facilities are also used for daily practice and games by students and faculty.

NSS:

A separate space is provided for its functioning and the activities are conducted using the various facilities available in the college.

Cultural Activities, Public Speaking and Communication Skill Development:

The Film and Drama Club, Literary and Debate Club, Dance and Music Club and Photography Club functioning in the campus offer immense opportunities for the students to acquire, improve and demonstrate their extra-curricular skills. Various activities organised are conducted in the college auditorium, seminar halls and in temporary stages setup in the college ground.

Yoga:

NSS unit organizes yoga training in the campus occasionally.

Health and Hygiene:

- Women's cell organizes awareness program on health and related issues occasionally.
- College canteen and hostel mess are provided with modern equipment to ensure cleanliness and hygiene.
- Water purifiers are installed at various locations to ensure safe and clean drinking water.
- First aid facilities are available in all laboratories.
- Waste management facilities like water treatment units, disinfection mechanisms, bio gas plants, incinerators, waste baskets etc., are provided in college and hostels.
- Waste water treatment plant works are initiated.

4.1.3 How does the institution plan and ensure that the available infrastructure is in line with its academic growth and is optimally utilized? Give specific examples of the facilities developed/augmented and the amount spent during the last four years (Enclose the Master Plan of the Institution / campus and indicate the existing physical infrastructure and the future planned expansions if any).

The infrastructure development is in line with academic growth. Each department level Infrastructure Committee discusses, monitors and reviews all infrastructural works in consultation with the Central Infrastructure Committee to finalize the requirements and to implement the design. Each new requirement is considered by optimally utilizing the available space, ensuring the required standards and norms. In the last three years many new facilities have been created and existing facilities have been renovated to meet the growing academic requirements. Some of the examples are listed below.

- All class rooms are equipped with smart class room facilities.
- Laboratories are equipped with the requirements incorporating the curriculum changes.
- A new mechanical block has been constructed.
- Hostels and buildings have been renovated.

- Institution has provided new facilities like Innovation and Entrepreneurship Development Centre and well-equipped Central Computing Facility to meet academic growth and development.
- For the new PG programs started in the departments of Electronics , Communication and Computer Science, new infrastructure has been developed as per the AICTE norms.
- New research laboratories such as Nano Technology Research Centre, Space Technology Lab, and VLSI Lab etc. have been setup to cater to the requirements of doctoral programmes.

The infrastructure facilities are made available to the students for their maximum utilization such as extended hours for the Central Computing Facility, Department Labs and Central library. Departmental facilities are shared for interdisciplinary and multidisciplinary programs. The amount spent for the facilities during the last 4 years is given in Table 4.1.3

Table 4.1.3 Amount spent for the facilities during the last 4 years

No	Items	2015-16	2014-15	2013-14
1	Infrastructure Development	38656420	42425593	31561081
2	Laboratory Equipments	5302455	3308184	6903470
3	Softwares	55800	1145000	1010315
4	Research & Development	288533	1549704	2522047
5	Laboratory consumables & maintenance	1598211	1275417	1833270
6	Machinery & Furniture	6563126	936172	1213795
7	Library	3313259	2099995	1657569
8	Maintenance & Contingencies	14840120	11507914	8678534
9	Research & Development (TEQIP)	116567	1013974	65406
10	Procurement (TEQIP)	20824157	21704423	11791971
	Total	91558648	86966376	67237458

Details of Land area and Built up area

The land area is 15.47 acres and built up area is 38366.65sq.m. The details of built up area of the different blocks are given in Table 4.1.4

Table 4.1.4 Built up area of different blocks

No	Block	Area (sq.m)
1	Main block	16357.30
2	Mechanical block	6075.60
3	Chemical block	4066.80
4	Gents Toilet	34.40
5	Construction Store	180.00
6	Godown	194.00
7	Electrical Workshop	643.30
8	PG/Architecture block	3777.00
9	Ladies Amenities	168.00
10	Canteen and Store	452.25
11	CE Workshop block	102.00

12	ME Workshop block	4251.00
13	Central Library	1592.00
14	Auditorium	972
15	TT	106.20
16	Gymnasium	287.80
17	ATM	49.00
18	Security Room	30.00

- An auditorium cum indoor games facility and six seminar/conference halls is planned. The government has approved the proposal and the work is about to start.
- The newly planned Architecture block is for the requirements of the B. Arch course and other institutional requirements.

4.1.4 How does the institution ensure that the infrastructure facilities meet the requirements of students with physical disabilities?

The entire academic area of the institution is accommodated in five building blocks. All the blocks have ramped access in the ground floor level. Major three blocks are connected through bridged corridors to facilitate easy access. Most of the labs and workshops are placed in the ground floor to ensure easy accessibility. The ongoing construction of lifts in major blocks, when completed, will provide better access to all the floors. Exclusivemale and female toilets for physically disabled persons have been provided in most of the rest rooms in the campus

4.1.5 Give details on the residential facility and various provisions available within them:

- Hostel Facility – Accommodation available
- Recreational facilities, gymnasium, yoga center, etc.
- Computer facility including access to internet in hostel
- Facilities for medical emergencies
- Library facility in the hostels
- Internet and Wi-Fi facility
- Recreational facility-common room with audio-visual equipments
- Available residential facility for the staff and occupancy
- Constant supply of safe drinking water
- Security Systems

Hostel Facilities

There are ten hostels providing accommodation for boys and girls with a total occupancy of 2345 inmates. The details are given in tables 4.1.5 & 4.1.6. The occupancy in Boys Hostels is 1230 and the occupancy in Girls Hostels is 1115.

Table 4.1.5 Accommodation in Boys Hostel

No	Name of Hostel	No. of Rooms	No. of Inmates
1	Golden Jubilee Hostel	126	510
2	Trust Hostel	64	259
3	Trust Hostel Annex I	20	36
4	Trust Hostel Annex II	34	92
5	Campus Hostel	112	278
6	International Students Hostel	27	55

Table 4.1.6 Accommodation in Girls Hostel

No	Name of Hostel	No. of Rooms	No. of Inmates
1	Ladies Hostel Main	63	230
2	Ladies Hostel Annex I	48	180
3	Ladies Hostel Enclave A,B,C blocks.	111	380
4	Working women's Hostel	83	325

International Students Hostel.

It is provided for the students joining the institution from abroad. This facility is maintained with high standards. Students joining the college under the PIO/OCI/FS category are allotted accommodation in this hostel. All are double rooms, furnished with two single cots along with mattresses. A large study table, wardrobe, study chair and bookshelf are provided for each student. There is an attached toilet for each room fitted with standard sanitary wares and designed to take care of proper hygiene. All rooms are provided with a kitchenette. Each floor is provided with washing machines, water cooler etc.

Facilities for table tennis, billiards and a modern gymnasium are provided for recreation and physical fitness of inmates. Outdoor facility includes a shuttle badminton court, fives football ground and cricket pitch for net practice. A home-theatre is provided for entertainment. Entire hostel is provided with Wi-Fi connectivity. A common study and reading room is provided for group studies and academic discussions. A standby generator for electric supply is provided to overcome power failure. Construction of a new block for the International Hostel is also nearing completion.

Recreational facilities, gymnasium, yoga centre, etc.

There is a playground for playing fives football and cricket practicing pitch. Also, there are basketball, volley ball and ball badminton courts in addition to the facilities for playing indoor games such as caroms, table tennis, chess etc. Gymnasiums with modern equipment's are available in all hostels. A multipurpose room provided in hostels can be used for practicing yoga.

Computer facility:

Computer facility and free access to Wi-Fi is available in all the hostels.

Facilities for medical emergencies:

The college has a medical aid room, provided with a physician, counsellor and a nursing staff for immediate medical emergency. For further medical necessity, the students are taken to the nearby hospital. Emergency vehicle and driver are available, round the clock, for the college as well as hostels.

Library facilities in the hostel:

A reading room is provided in the hostel in which books and magazines of general nature and newspapers are available.

Internet and Wi-Fi facility:

Free access to internet throughout the day with Wi-Fi facility is provided to the students in hostels.

Recreational facility-common room with audio-visual equipment:

Common reading rooms with audio visual equipment are available in all the hostels

Available residential facility for the staff and occupancy:

Individual accommodation is provided in the hostels on demand.

Constant supply of safe drinking water:

Water is sourced from tube wells and one open well located in the premises. There is a central water treatment plant which filters and treats water before distribution.

Security:

There is twenty-four hours manned security provided to the entire campus including hostels. CCTV camera network is also installed in some hostels.

4.1.6 What are the provisions made available to students and staff in terms of health care on the campus and off the campus?

First aid boxes are provided in every laboratory. Emergency vehicle and driver are available, round the clock. Travancore Medical College Hospital is easily accessible from the college and can be reached in five minutes time. There are six other specialty hospitals with ambulance facility within 10 km radius from the college.

4.1.7 Give details of the Common Facilities available on the campus—spaces for special units like IQAC, Grievance Redressal unit, Women's Cell, Counseling and Career Guidance, Placement Unit, Health Centre, Canteen, recreational spaces for staff and students, safe drinking water facility, auditorium, etc.

Career Guidance and Placement Unit (CGPU): This is functioning in the main block with seminar and conference halls adjacent to it, to enable the smooth conduct of campus recruitment drive.

Auditorium and other facilities: An auditorium to accommodate 750 persons and recreational spaces like indoor and outdoor sports and games activities are available for the students and staff. A new proposal for auditorium cum indoor games facility in the campus aims to cater the future requirements of conventions and recreations. All the institutional and professional associations and organizations like, IQAC, Research Council, QIP Centre, IEEE, ISTE, CSI, Alumni office, NSS, Students Affairs and related meeting spaces, located in different parts of the campus, will be shortly shifted to a newly proposed space in the campus.

Canteen facility: A canteen is functioning inside the campus to provide quality food for the students and staff members at moderate rates.

Safe drinking water facility: Ground water from lateritic aquifer is the main source of drinking water in the college campus. Water from the bore wells and open wells are pressure filtered and chlorinated before use. Overhead water tanks are provided in each block of the institution. UV treated and filtered water is available in water

coolers provided in each block. Routine cleaning of water tanks, coolers and filters are carried out as per fixed schedule.

Transportation facility: The transportation facility is used by nearly 20% of the students. The College is only six km away from the heart of the city and city buses commute at every two minutes. The nearest railway station and bus stop are just 100m away from the college campus. College bus is available for transportation of students, faculty and staff of the college.

ATM facility: A State Bank of Travancore ATM is available within the campus and two other ATMs are functioning in close proximity to the college campus.

Cooperative Store and Reprographic facility: A co-operative society has been established with the objective of helping students and staff in purchasing books, stationery and all general commodities at moderate rates. The society is kept open on all days from 9.00 am to 6 pm except on Sundays and other notified holidays. A reprographic facility is also functioning along with the co-operative store.

Library as a Learning Resource

4.2.1 Does the library have an advisory committee? Specify the composition of such a committee. What significant initiatives have been implemented by the committee to render the library, student/user friendly?

Yes. The library has an active library advisory committee named as “Library Council”. The composition of the Library Council is as follows:

The Library Council consists of a senior professor as Chairman, Librarian as coordinator, UG Dean, PG Dean, Research Dean, four Professors from different departments and also General Secretary of the college students’ union. The Council meets at least once in a semester or as and when required to discuss the functioning of the library and take decisions regarding the purchase of books, e-journals, magazines, journals etc. It also monitors the stock verification.

Initiatives implemented by the Committee:

To make the library learner centric and user friendly, following steps were implemented:

1. More number of NPTEL videos added to the library collection.
2. Facility for searching the OPAC (Online Public Access Catalogue) from anywhere in the campus.
3. A separate library portal on the college website to access the Digital Library.
4. Campus wide access to e-resources in the library even before it was made mandatory by AICTE.
5. Bar coding implemented in the library and incorporated in the college ID cards.
6. Library timings extended beyond the existing working hours.

4.2.2 Provide details of the following:

Carpet area of the library (Sq. m.)	:	930
Reading space (Sq. m)	:	400
Number of seats in reading space	:	200
Number of users (issue) per day	:	180
Number of users (reading space) per day	:	200

Timings:

a) Working days	:	Reference and Periodical Section, 9 am to 9 pm
	:	Circulation and Book Bank, 10am to 5pm
b) Saturdays	:	Reference and Periodical Section, 9 am to 9 pm
	:	Circulation and Book Bank, 10am to 5pm
c) Vacation	:	Reference and Periodical Section, 10 am to 5 pm
	:	Circulation and Book Bank, 10am to 5pm

Number of library staff	:	5
Number of library staff with degree in Library management	:	2
Computerization for searching, indexing, issue/return records	:	Yes
Bar coding used	:	Yes
Library services on Internet/ Intranet	:	Yes

Archives: Separate section for back volumes of journals and archives of question papers available in the circulation counter.

Layout of the library:

The library has the following physical layout/sections:

- Reading Halls – 4
- Stack Room – Arrangement is made according to the Dewey Decimal Classification
- Circulation Counter -1
- Property Counter -1
- OPAC (Kiosks) -1
- Internet Facility Centre (Digital Library)-1 (20 systems)
- Back Volumes of Periodicals
- Periodicals Section
- SC/ST Book Bank
- Book Binding area
- Reference Books
- Technical Section
- Librarian's Cabin

4.2.3 How does the library ensure purchase and use of current titles, print and e-journals and other reading materials? Specify the amount spent on procuring new books, journals and e-resources during the last four years.

The library procures relevant collection of books, journals, electronic resources and databases to support all the courses. The departmental requirements are consolidated by the librarian and the Library Council monitors, approves and allocates appropriate

budget for the procurement. Apart from the departmental recommendations, the librarian purchases books on the basis of expressed demand from users recorded in the suggestion register kept in the circulation counter. E-journals are procured based on the direction from AICTE from time to time. In addition, other useful e-resources are also subscribed.

The TEQIP purchase committee is also actively involved in purchase of books to the central library and department libraries. The amount spent on procurement of books/print journals/e-resources etc., are given in Table 4.2.1

Table 4.2.1 :Amount spent on procurement of Books/Print Journals/ E-resources etc..

Library holdings	2013-14		2014-15		2015-16		2016-17	
	No	Total cost Rs	No	Total cost Rs	No	Total cost Rs	No	Total cost Rs
Text & Reference Books	3633	862583	4145	35,56,231	1278	632133	765	3,24,254
Print Journals/ Periodical	121	171828	128	180158	112	183212	114	1,99,197
e-resources	4000+	1666684	3000+	1666684	4000+	2277774	4000+	18,39,861
Any other (Specify)	Book binding, stationery, Maintenance of computer	241615	Binding, stationery, Purchase of almirah, Computer table	383342	Book binding, stationery, Maintenance of computers and xerox machine	370187	Book Binding, stationery, Maintenance of computer	2,45,707

4.2.4 Provide details on the ICT and other tools deployed to provide maximum access to the library collection

- Web OPAC search facility is available through the intranet throughout the campus
- Electronic resources can be searched anywhere from the campus (intranet). The details of E-resources for various disciplines is provided in Table 4.2.2

Table 4.2.2:E-resources for various disciplines:

No	Name of the Package	Hyperlink	Subject area
1	ASME	http://asmedigitalcollection.asme.org/	Mechanical
2	ASCE	http://ascelibrary.org/	Civil
3	IEEE	http://ieeexplore.ieee.org/	EEE/ECE/CSE
4	Elsevier	http://www.sciencedirect.com/	All Branches
5	J GATE	http://jgateplus.com/search/	All Branches
6	SPRINGER	http://link.springer.com/	CSE/ EEE/ECE
7	Mc Graw Hill	http://accessengineeringlibrary.co	All Branches
8	Pearson E-books	http://lib.myilibrary.com/Browse.aspx	All Branches
9	Delnet	http://www.delnet.nic.in/	All Branches
10	N LIST	http://nlist.inflibnet.ac.in/	Science subjects
11	GREENR GALE CENGAGE PERIODICALS	http://infotrac.galegroup.com/itweb/tkm_engg	Architecture
12	EBSCO (Art & Architecture)	http://search.ebscohost.com	Architecture

Library website : The library portal has been integrated in the website of the college (<http://tkmce.ac.in/library>).

A separate link is provided in the college website to search the digital library. (<http://tkmce.ac.in/digital-library.html>)

Inhouse/remote access to e-publications:

Remote access has been provided to all the electronic resources subscribed in the campus, as the publishers permit only IP authenticated access. The resources having password access can be accessed through Internet.

Library automation:

The library is fully computerized using the software “Koha” and it covers all the functions inside the Library.

Total number of computers for user access: 21 No. s

Total number of printers: 2 No. s

Internet bandwidth/ speed:

50 Mbps leased line fibre-optic connectivity from BSNL and 10 Mbps Broadband connections from BSNL.

Institutional repository:

Articles published by the faculty, previous years question papers, seminar reports, project reports etc. can be accessed through digital library portal.

Participation in resource sharing networks/ consortia (Like Inflibnet)

- Member INFLIBNETNLIST consortium
- Member DELNET consortium
- Member AICTE-INDEST consortium

4.2.5 Provide details of the following items

Table 4.2.3: Details regarding library

No	Details	Number
1	Average number of walk-ins	200
2	Average number of books issued/returned including department libraries	500
3	Ratio of library books to students enrolled	20:1
4	Average number of books added during last three years	25000
5	Average number of login to OPAC	100
6	Average number of login to e-resources downloaded / printed	110
7	Number of information literacy trainings organized	4
8	Details of “weeding out” of books and other materials	5617 books weeded out

4.2.6 Provide details of the specialized services provided by the Library

Manuscripts

Nil

Reference

The library has a separate reference section consisting of encyclopaedias, dictionaries, handbooks etc. A copy of each of the costly text books are also kept in the reference section.

Civil Service Proficiency Corner: A study area has been developed for Civil Service Aspirants in the Library with exclusive study material for Civil Services Exam.

Reprography

Reprographic facility is available at nominal cost.

ILL (Inter Library Loan services)

The library is a member in the Delnet consortium, through which Inter Library Loan service is provided.

Information deployment and notification

Library notice boards are established inside the library, inside the digital library and in the notice board area in the main block of the college. In addition, circulars and notices are provided through e-mail, SMS, website, notices in the class room, etc.

Download

Download facilities are available inside the library and in the campus. Wi-Fi facilities provided in the hostels enable the students to download the required data.

Printing

Printing facility is available. Members can take printout at nominal cost.

Reading List/ Bibliography compilation

Compilation of bibliographies and reading lists are made easy with the help of the software used in the library.

In house/ remote access to e-resources

Facilities are provided to access the subscribed resources both inside the library and from the entire campus and hostels.

User orientation and awareness

User orientation programs are conducted annually in the beginning of the courses.

Assistance in searching database

Assistance in searching the database is provided through the web portal of the library.

INFLIBNET/IUC facilities

The library has the membership in NLIST program of the INFLIBNET and also in the DELNET program of MHRD. Union catalogues and inter library loan facilities are available through these programs.

4.2.7 Enumerate on the support provided by the library staff to the students and teachers of the college

- Library staff provide support and assistance in searching OPAC and locating books
- Make students aware about library numbering system, journals and other xerographic facilities
- Provide facilities for seating and reading and keep library premises neat and clean
- Assist the users in digital library searching

4.2.8 What are the special facilities offered by the library to the visually/ physically challenged persons? Give details

Arrangements are made for the physically challenged students to access the library. Such students are given special assistance by the library staff such as searching the database, selection of books and issue and return of books without any delay.

4.2.9 Does the Library get feedback from its users? If yes, how is it analyzed and used for improving the library services. (What strategies are deployed by the Library to collect feedback from users? How is the feedback analyzed and used for further improvement of the Library services?)

Yes, in order to improve the library services, a suggestion book is kept in the circulation counter. Feedbacks are also received through e-mails. These are analyzed and necessary steps are taken to correct them. Request for books are incorporated in the next purchase order.

4.3 IT Infrastructure

4.3.1. Give details on the computing facility available (hardware and software) at the institution. Number of computers with configuration (provide actual number with exact configuration of each available system)

Computing facilities are available in each Department and Central Computing Facility of the college. Many licensed softwares are being utilized for specific applications. Table 4.3.1. provides details of general computing facility

Table 4.3.1 Computing facilities in the college

No.	COMPUTING FACILITIES	NUMBERS
1	College Office	21
2	Central Computing Facilities	130
3	College Library	37
4	Dept. of Architecture	34
5	Dept. of Civil Engineering	120
6	Dept. of Chemical Engineering	44
7	Dept. of Computer Science and Engineering	239
8	Dept. of Electrical and Electronics Engineering	66
9	Dept. of Electronics and Communication Engineering	82
10	Dept. of Mechanical Engineering	79
11	Dept. of Computer Applications	46
12	Basic Science Departments	5
		Total
		903
Department	Server	
Computer Science and Engineering	Server – Dell Power edge T110 II Server Intel Xeon E3-1220V2, 3.10 Ghz, 8 Mb Cache, 16 GB RAM 1600 Mhz, 2x1 TB HDD SATA II 7.2 K RPM	
	Windows Server -HP Proliant Gen8 Server Intel Xeon E52403, 1.8 Ghz, 4 core, 16 GB RAM, 4 x500 GB SATA HDD	
	Windows Server – IBM e Server series 225 Intel Xeon processor, 2x256 ECC RAM, 36.4 GB SCSI HDD,	
	Server Computer – Dell Power edge R210 II Xeon-processor E301220v2, 3.10 Ghz, 16 Gb RAM, 2x 1TB SATA HDD RAID.	
Electrical and Electronics Engineering	Server -IBMX3650,E5420 Quad Core,2.5GHz,2GB DDR2 RAM	
Electronics and	HP Server HPML10G8 3.1 Ghz/ 4Core /8MB 69W4	

Communication Engineering	Dimms Slots/ 4GB RAM HP ITBNonHot Plug.		
Networking Equipment and Servers in Campus Networking Centre			
No	Servers	Models	Qty
1	DELL (Eazy Campus Server)	Dell Power Edge R710	2
2	DELL(CCF Domain Server)	Dell Power Edge R320	1
3	DELL(Koha Server & Proxy Server)	Dell Power Edge T110 II	3
4	HP(Web hosting Server)	HP ProLiant ML110	2
5	HP (Staff Attendance Server)	HP ProLiant ML10	1
6	HP (CGPU Server)	HP ProLiant ML110G7	1
7	Assembled Radius Server	Intel Xeon/8GB	1
8	HP(Web Server)	HP Proliant ML 310e Gen8 V2	1
UTM/VPN Firewall/Router/L3Switches			
1	CyberoamUTM(Sophos 01-TVSP-RNL-0750ING)	CR750ING-XP	1
2	D-Link Firewall(VPN Server and UTM)	DFL2560G	1
3	D-Link – L3 Switches	DGS-3620-28TC-L3	1
4	CISCO	CISCO 2921	1
5	D-Link (Service Router)	DSR1000N	1
Wireless Controller			
1	Ruijie	RG-WS5302	1
2	Ruijie Access point	RG-AP320I	70
Switches			
1	D-Link	DWS 3160-24TC	1
2	D-Link	DGS-1210-28	12
3	D-Link	DGS-1500-28	1
4	D-Link	DGS-3120 24 TC	4
5	Netgear	FS728TP	1
Printers			
1	HP	Laserjet M1005 MFP	1
Desktop/Laptop			
1	Laptop	Dell Vostro 2520	1
2	Desktop	Dell Optiplex 9020	1

Details of the licensed software available at the institution are given in Table 4.3.2

Table 4.3.2 Licensed software available

Institution based licensed software	
License Type	Software
Microsoft OVS-ES (140 User)	Windows 7, Windows 8.1, Windows10, Windows2008 Server, Windows 2012Server
	Office 365,
DreamSpark Premium	Visual Studio, Microsoft Office, Windows, SQL Server, NET Framework
Educational Multiseat Stand-alone license for Building Design Suite Ultimate 2016	Autodesk
MatLab Standard Configuration for TAH+32 Addons	MATLAB 2017b

Department	Licensed Softwares
Civil Engineering	AUTOCAD2004, STADD. Pro 2004, STADD. Foundation, STAAD PRO-V8i-Global Package, SESAM, MIDAS GTS Software, SPSS 19 Software MATLAB 2016, Prima Vera Trial versions and open source software of Auto CAD, ANSYS Civil, WEKA, DTREG, SPSS, Easy Fit, Q-GIS
Computer Science and Engineering	<ul style="list-style-type: none"> • Microsoft Cloud Campus Agreement • Oracle 11g • MATLABR2013b+Tool Box(3 users) • Qualnet 7.1 Simulator
Electrical and Electronics Engineering	Windows XP, Windows-7 , MATLAB, Process Control Softwares (Level, Temperature, flow), PLC Software, Windows-8 , C, C++, Lab View & Multisim CimplicitySCADA, Fortran popwer station, MS VB, PSPICE, MS Office
Electronics and Communication Engineering	Opti Link Simulation Tool (Software) CST Studio Suit (RF & Microwave Simulation Tool) VLSI Design Package Cadence University Bundle-3 No of users 10. Mentor Graphics HEP category 1-1C custom Design Software Full custom layout Editor Labview software VHDL/VERILOG Design Software (Xilinx system edition version 14.5) 25 users license. MATLAB
Mechanical Engineering	Windows 7 Ultimate, Windows 7 Professional, Windows 8 Professional, ANSYS Fluent, ANSYS

	Mechanical, ANSYS Multi Physics, LabVIEW, MATLAB, SOLIDWORKS, AutoCAD, Windows 10 Enterprise, DWG Editor, ANSYSCFX
Computer Applications	ORACLE 11i, Windows7, Windows 8
Architecture	Windows7, AUTOCAD
Central Computing Facility	AUTOCAD 2016, ETNL, Windows 8.1
Central Library	Library automation software used : Koha
College Office	Tally ERP9, WIN7X86 Professional OS, WIN XP Professional, WIN 8.1 PRO OS

4.3.2 Detail on the computer and internet facility made available to the faculty and students on the campus and off-campus?

- The Campus Networking Centre provides 24 hours internet services in campus and hostels. The Networking Centre is maintained by a dedicated System Administrator. The campus has one 100 Mbps leased line connectivity and one Broadband 10Mbps connectivity from BSNL. The entire campus is Wi-Fi enabled and registered users can connect their laptop at any time to access internet.
- All the class rooms and laboratories are equipped with dedicated wired internet connection. All the hostels are connected to the campus networking centre through fibre network, to provide Wi-Fi enabled browsing centers for the inmates.
- The campus has a central computing facility with 129 Dell Business Desktop computers with 4th gen Corei3 processor, 4GB Ram, 500GB HDD and 18.5" monitor and Canon laser printer. All systems are connected to internet via a 1000Mbps structured LAN and these are accessible to students and faculty.

4.3.3 What are the institutional plans and strategies for deploying and upgrading the IT Infrastructure and associated facilities?

The requirements for up-gradation of existing departmental facilities along with the proposed budget are put forth to the college administration by the end of every academic year. This will be followed by the constitution of Purchase Committees. All the requirements are discussed and decisions are taken for purchase or up-gradation of facilities by the institution management and purchase committees. Tenders are placed online on institution website. Following all the terms and conditions of tendering, the committee finalizes the tender and recommends placing the purchase order. This procedure is followed for the purchase of computers, software and other equipments.

4.3.4 Provide details on the provision made in the annual budget for procurement, up gradation, deployment and maintenance of the computers and their accessories in the institution (Year wise for last four years).

Table 4.3-3 shows the budget allocation for the infrastructure of all computers and their accessories up keeping.

Table 4.3.3 Budget for computer hardware and accessories in rupees

COMPUTER HARDWARE								
ITEM	2013-14		2014-15		2015-16		2016-17	
	College	TEQIP	College	TEQIP	College	TEQIP	College	TEQIP
Procurement	2800000	2475000	4000000	2050000	400000	10000000	2500000	150000
Upgradation	1500000	2000000	2500000	2000000	200000	5015000	1475000	50000
Maintenance	300000		350000		400000		500000	
Internet	1400000		1500000		1800000		2000000	
Total (Rs)	6000000	4475000	8350000	4050000	2800000	15015000	6475000	200000

4.3.5 How does the institution facilitate extensive use of ICT resources including development and use of computer-aided teaching/ learning materials by its staff and students?

The institution provides adequate computer facility to the faculty and students. Faculty members are provided with computer and internet facility for preparation of teaching and learning resources. For an interactive and effective learning process, all the class rooms have smart class facility with the latest LCD projectors and sound systems. The institution has a website (<http://tkmce.ac.in/>) which is being updated regularly with all college information.

Campus academics automation system helps in monitoring all the academic activities. Students can access all the course materials uploaded by the concerned faculty members. Exclusive email and SMS facility are being provided for communication between different stake holders of the college.

The institution focuses more on IT infrastructure, with an increasing band width for maximum utilization of e-learning resources. The institution has a digital library, providing access to a variety of electronic resources such as e-journals, e-books and databases and a good number of open access resources. Classroom discussions with the help of videos and animations are practiced in the course delivery process.

4.3.6 Elaborate giving suitable examples on how the learning activities and technologies deployed (access to on-line teaching-learning resources, independent learning, ICT enabled classrooms/learning spaces etc.) by the institution place the student at the centre of teaching-learning process and render the role of a facilitator for the teacher.

This institution is a participating college of the QEEE programme. Sessions under this programme are arranged in the Lecture Theatre of the college. These provide a platform for two-way interaction between the course instructors (IIT Professors) and students of this college/ local faculty. Students take part in discussions and question - answer sessions directly with the instructors and the faculty of the college provide the support for conducting the sessions.

Eazy Campus is the academics automation system used in the college. It enables the students and parents to monitor students' performance anywhere, anytime. The

teaching plan, teaching notes, assignment questions, and question bank are uploaded on the Eazy Campus for the use of the students.

All the classrooms are equipped with smart-class facilities and they are used for substantiating the contents of the classroom lectures. Students use the smart-class facilities for their seminars and projects presentations. They have direct access to these facilities in the class rooms at their leisure time.

Remedial classes are arranged for students who are weak in learning activities. The e-learning resources in the central library of the college such as e-journals, e-books, databases, and a good number of open access resources are accessible to the students from anywhere at any time in the campus. NPTEL lectures are available in the library for the use of students and faculty.

4.3.7 Does the Institution avail of the National Knowledge Network connectivity directly or through the affiliating University? If so, what are the services availed of?

The institution is not availing National Knowledge Network connectivity. The college avails the N-LIST programme of UGC-INFONET. Students and faculty can access the e-resources in this programme through internet in the college campus.

4.4 Maintenance of Campus Facilities

4.4.1 How does the institution ensure optimal allocation and utilization of the available financial resources for maintenance and upkeep of the following facilities (substantiate your statements by providing details of budget allocated during last four years)?

The Table 4.4.1 shows allocation and utilization of available financial resources for the proper maintenance and up keeping of all facilities.

Table 4.4.1 Allocation and utilisation of available financial resources

Items	2015-16		2014-15		2013-14	
	Budgeted	Actual	Budgeted	Actual	Budgeted	Actual
Infrastructure Development	40000000	38656420	45000000	42425593	32500000	31561081
Laboratory Equipments	5905000	5302455	4202000	3308184	7878000	6903470
Softwares	100000	55800	1170000	1145000	1120000	1010315
Research & Development	410000	288533	1810000	1549704	3660000	2522047
Laboratory consumables & maintenance	2041000	1598211	1612000	1275417	2206000	1833270
Training & Travel	40000	33492	185000	158274	719000	490161
Miscellaneous Expenses for academic activities	940000	923645	875000	757714	850000	783524
Machinery & Furniture	7150000	6563126	1015000	936172	1400000	1213795
Salary	300000000	298954709	320000000	313843524	280000000	270343583
Library	3500000	3313259	2250000	2099995	1800000	1657569
Maintenance & Contingencies	15000000	14840120	12000000	11507914	10000000	8678534
Training & Travel (FSD)(TEQIP)	3255000	2881450	8472000	7854206	4670000	4242768
Research & Development (TEQIP)	139000	116567	1140000	1013974	76000	65406
Assistantship to Non GATE students (TEQIP)	1790000	1677097	1040000	912637	545000	493200
Management Capacity Development (TEQIP)	63000	28231	266000	248001	662000	590033
IIC (TEQIP)	485000	437382	635000	561808	700000	617714
Institutional Reforms (TEQIP)	1465000	1296062	1500000	1460680	25000	18836
Student Support (EAP)(TEQIP)	480000	434633	862000	768140	1057000	975829
Procurement (TEQIP)	22015000	20824157	23860000	21704423	13100000	11791971
IOC (TEQIP)	1400000	1321346	2000000	1666318	1600000	1448499
Total	406178000	399546695	429894000	415197678	364568000	347241605

4.4.2 What are the institutional mechanisms for maintenance and upkeep of the infrastructure, facilities and equipment of the College?

The annual budget and allocation of funds for regular monitoring of utilization of funds for maintenance ensures the upkeep of the infrastructure in the institute. The college has an Infrastructure Committee which is assigned the task of maintenance and upkeep of the infrastructure. Each department has representatives in it. The day to day maintenance of the general infrastructure is done by a Facilities Management Committee.

Each laboratory is under a lab-in-charge and assistant-lab-in-charge. The technical staff of the laboratory performs the duty of maintenance and upkeep of equipments of each lab under the supervision of the lab-in-charge. Annual stock verification of all the equipments of the college is done by a committee appointed by the Principal for that purpose. The campus networking centre is maintaining the IT services for all the stake holders of the college.

Facilities Management Committee (FMC)

The FMC has Engineering Cell, Cleanliness Cell and an Engineering and Cleanliness Help Desk under it. The FMC has a Chief Coordinator and separate coordinators for each engineering division. The important duties entrusted to the Chief Co-ordinator of FMC are Operation Management of Engineering & Cleanliness Cell and Annual Budget Preparation. The Chief Coordinator of FMC reports to the head of Institution. The FMC will be in charge of all facilities and it will be conducting scheduled routine inspection and monitoring of department facilities such as smart classrooms, tutorial rooms, seminar rooms, labs workshops, etc. Any complaints reported, will be inspected and appropriate actions will be taken to resolve it. The Chief Coordinator has been entrusted to make a proposal for future planning/preventive maintenance and cleanliness.

There is a faculty in-charge from each department who will be working in coordination with the Chief Coordinator of FMC.

Functions of each cell

Cleanliness Cell

The cell looks after cleanliness of campus and all building interior and exteriors. Waste disposal from each department is also taken care of by the cell.

Engineering Cell

The Engineering Cell under FMC looks after the civil works, electrical works, plumbing, electronics works, air conditioning systems maintenance, internet facility, carpentry, material handling, UPS, water coolers, painting, printing / Photostat, computer peripherals, storage of furniture and landscape and garden maintenance.

The safety of the entire campus is being entrusted to a security agency, which is a batch of 5 members including security officer. Security monitoring devices have been installed at various vantage locations of the campus, for the security and activities monitoring.

As part of campus infrastructure improvement, the renovation, remodelling, re-design/re-development and setting of new structures is in progress. This task has

been entrusted to a team of faculty members and their duty is to look after the projects from the stage of execution till completion.

4.4.3 How and with what frequency does the institute take up calibration and other precision measures for the equipment/instruments?

The calibration process will be taken up by each department for various equipments as per the time frequency suggested by the supplier of equipment /machinery. Each laboratory is keeping a maintenance and calibration log book for documenting the maintenance and calibration of instruments.

4.4.4 What are the major steps taken for the storage, upkeep and maintenance of sensitive equipment (voltage fluctuations, constant supply of water etc.)?

For the proper functioning of all activities during the time of power failures, adequate measures have been taken. Generators of specifications 200KV and 30KV are available in the institute, which helps in maintaining continuous power supply without any hindrance to ensure that there is an uninterrupted conduct of the academic activities in the smart class rooms of the college during such situations. A new generator has been setup near the new Mechanical block, of capacity 200KV. There is a proposal for installing a centralized UPS system to ensure that all the computer laboratories, sensitive equipments in all labs and seminar halls in each department will function in all situations of power failures.

All the departments with computer laboratory facility have their own UPS. Timely monitoring is done to ensure that the systems and the batteries are working well. The department coordinator concerned is entrusted with this job. The electrical works section under FMC works in co-ordination with the Department of Electrical and Electronics Engineering for proper guidance.

The rain water harvesting system in the college ensures continuous availability of water in the dug wells and thereby ensures constant supply of water in the college.

CRITERION V: STUDENT SUPPORT AND PROGRESSION

5.1 Student Mentoring and Support

5.1.1 Does the institution publish its updated prospectus/hand book annually? If yes, what is the information provided to students through these documents and how does the institution ensure its commitment and accountability?

Yes, the institution does publish an information brochure/handbook annually. The details provided included are related to Vision and Mission of the college, historical background, office bearers of the TKM trust, HODs of various departments, advisors of first year students of various departments, details of the academic coordinator, activities of the Career Guidance and Placement Unit (CGPU), Anti-ragging Cell, Easy Campus Software, hostel information and faculty in charge of various hostels, rules and regulations in the college and the hostel, information regarding nearby hospitals and details regarding various scholarships offered by the college etc. The brochure also includes the description of the college as well as the various courses offered with the approved intake.

Office bearers mentioned in the brochure strictly follow their duties and hence ensure the discipline inside and outside the campus. The institution has internal mechanisms to track the prompt deliverance of duties by the respective functionaries and periodic review to ensure its commitment and accountability.

5.1.2 Specify the type, number and amount of institutional scholarships/freeships given to the students during the last four years and whether the financial aid was available and disbursed on time?

Yes. Various Central Government, State Government and National Agency Scholarships are available to provide financial aid to deserving students and they are dispersed on time. The various scholarships available are listed below.

- MCM : Merit Cum Means Scholarship, Central Government
- CSS : Central Sector Scholarship, Central Government
- E-Grantz (FC): Forward Caste, State Government
- E-Grantz (SEBC): Socially and Economically Backward Class, State Government
- E-Grantz (SC): Scheduled Caste, State Government
- E-Grantz (ST): Scheduled Tribe, State Government
- E-Grantz (OEC): Other Eligible Community, State Government
- CHMKS: C H Mohammed Koya Scholarship, State Government
- Fishermen Students Scholarship, State Government
- University Merit Scholarship, State Government
- Arunachal Pradesh State Students Scholarship, AP State Government
- Lakshadweep Students Scholarship, Central Government
- IOCL: Indian Oil Corporation Ltd. Scholarship, National Agency
- FAEA: Foundation for Academic Excellence and Access, National Agency
- MHRD: Ministry of Human Resource Development, Central Government
- TEQIP: Technical Education Quality Improvement Programme, Central Government

The number of students that availed the various scholarships of the Central Government, State Government and National Agencies are given in Table 5.1.1

Table 5.1.1 Central Government, State Government and National Agencies Scholarship Details

No	Scholarship	2012-13		2013-14		2014-15		2015-16	
		No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)	No	Amount (Rs)
1	MCM	113	1394460	215	2537799	283	3697765	310	6457044
2	CSS	131	DTTSA	145	DTTSA	133	DTTSA	112	1170000
3	E-grantz-FC	152	1170345	119	928360	156	1439820	63	813225
4	E-grantz-SEBC	413	3147205	207	1515615	489	4570845	359	2803000
5	E-grantz-SC	185	5298280	185	6332795	187	8401313	206	6973479
6	E-grantz-ST	20	702558	22	832751	25	1137070	25	1215026
7	E-grantz-OEC	37	1399729	39	1280726	57	2091834	126	5332884
8	CHMKS	28	DTTSA	33	DTTSA	9	DTTSA		DTTSA
9	Fishermen Students	9	188889	9	335531	6	217208	5	122900
10	University .Merit	6	35000	4	20000	8	40000	6	30000
11	Arunachal Pradesh	13	124600	15	166800	13	174200	13	130000
12	Lakshadweep	31	813209	29	DTTSA	24	DTTSA	18	270000
13	IOCL	-	-	2	72000	7	252000	7	252000
14	FAEA	1	22500	1	50000	1	50000	1	50000
15	Snehapoorvam					1	10000	1	10000
16	MHRD (PG)	69	6624000	104	9984000	115	11040000	95	14136000
16	TEQIP (PG)	-	-	16	493200	28	912637	33	1677097
TOTAL		1208	DTTSA +	1145	DTTSA +	1541	DTTSA +		DTTSA+ 41432655
			20920775		24549577		34024692		

* DTTSA : Direct Transfer to Student Account (Includes Tuition Fees and Hostel Fees)

In addition to the scholarships given by external agencies, the college also gives an Institute level scholarship known as TKM Merit-Cum-Means scholarship (TKM-MCM) for the bright and needy students. This scholarship is given exclusively from a monthly voluntary contribution from the entire staff of the institution. The MCM scheme is to provide financial assistance to the poor and meritorious students to enable them to pursue professional courses.

Alumni chapters also award gold medals and cash prizes worth one lakh rupees every year to meritorious students of all branches based on rules set by alumni associations. The details of TKM-MCM scholarship dispersed during previous years are given in Table 5.1.2

Table 5.1.2 TKM-MCM Scholarships

No	Branch	2012-13	2013-14	2014-15	2015-16	2016-17
1	Civil	11	10	11	11	15
2	Mechanical	14	14	18	19	24
3	Electrical and Electronics	9	7	7	11	16
4	Electronics and Communication	8	7	8	9	12
5	Computer Science	6	6	9	8	8
6	Chemical	6	7	9	8	8
7	Architecture	2	2	5	1	5
8	MCA	3	3	6	7	6
9	Total Students	59	56	73	74	94
10	Total Amount (Rs)	7,08,000	6,72,000	10,95,000	11,10,000	1058400

5.1.3 What percentage of students receive financial assistance from the State government, Central government and other national agencies?

There are a lot of students belonging to economically weaker sections of the society. The institution provides financial assistance from the Central Government, State Government and National Agencies to these economically weaker and/or meritorious students. The table 5.1.3 gives the percentage of Government and National level scholarships given to students.

Table 5.1.3 Number and Percentage of students who availed Central, State and National Agencies Scholarships

No	Year	No of Students Availed Scholarships	Total Students	Percentage
1	2011-12	1126	2816	39.98 %
2	2012-13	1208	2935	41.16 %
3	2013-14	1145	2997	38.20 %
4	2014-15	1541	3089	49.88 %

In addition to this, the institution has the TKM-MCM scholarship given to deserving students every year. During the academic year 2014-15, a total of 1541 students were given Central Government, State Government and National Agency scholarships. The Institute level TKM-MCM scholarship was given to 73 students in the same year. The percentage of students who availed various scholarships during the year 2014-15 is given below.

- 49.88 % students availed scholarships from Government and other national agencies.
- 52.25 % of students in total availed scholarship benefits including institute scholarships.

5.1.4 What are the specific support services/ facilities available for.

1. Students from SC/ST, OBC and economically weaker sections:

The students belonging to SC/ST, OBC and the economically weaker sections are given all the available Central and State Government scholarships. A separate SC/ST Book Bank is made available in the library. Faculty members also contribute for economically weaker students. TKM-MCM scholarship and Alumni association also provide scholarships for students from economically weaker sections.

2. Students with physical disabilities:

The campus environment is friendly to the physically disabled candidates. Special encouragement, guidance and care are given in studies and practical sessions. The college allocates classes for the physically disabled students in the ground floor of the main building. Ramp facility and wheel chairs are provided inside the campus. Examination halls are arranged in the ground floor. Extra time is given to them for University examinations as per University norms. Smart class rooms are provided for getting better audibility.

3. Overseas students:

A hostel for International students is provided for the students joining the institution from abroad. This facility is maintained with high standards. Students joining the college under PIO/OCI/FS category are allotted to this hostel. All the students are provided with furnished, bath-attached double rooms and are also provided with a kitchenette.

Table tennis, billiards facilities and a modern gymnasium are provided for recreation and physical fitness of the inmates. Outdoor facilities include a shuttle badminton court and a cricket pitch for net practice. A home-theatre is provided for entertainment. The hostel is provided with Wi-Fi connectivity. A common study and reading room is furnished for group studies and academic discussions. A standby generator for electric supply is provided to overcome the power cuts.

The foreign students' adviser deals with the queries regarding the admission of students for the B.Tech degree programme and also attends to their grievances, discipline issues and counselling of foreign students.

4. Students to participate in various competitions/national and international levels:

The college encourages participation in various competitions at state and national levels. Along with academics, students are encouraged to participate and involve in NSS, sports activities at the state and national level. They are given guidance for preparation and permission to attend various national and international competitions. The financial support needed for registration and transportation are provided. Grace marks are awarded for those students who have participated in University level competitions as per University norms. PTA fund is given for those students who participate in various national competitions, such as competitions organised by the Robotic Clubs and National Association for Students of Architecture (NASA). Duty leaves are sanctioned for the participants of various competitions. Make up classes for the class hours lost are arranged and retest for the series examination is also given on prior permission, if needed. A sports uniform is provided for the college teams in order to participate in various competitions.

5. Medical assistance to students: Health centre, health insurance etc:

First-aid treatment is provided for ailing students immediately. A first aid box is kept in all the laboratories. Service of a medical practitioner is available on call in the college for emergency medical care. Telephone numbers for medical emergency are displayed in each laboratory. The Travancore Medical College is located near the college and six specialty hospitals with ambulance facility are available within 10 km radius. The response time for calling ambulance from outside is 5-10 minutes. A vehicle facility is made available in the campus to meet emergency situations.

6. Organizing coaching classes for competitive exams:

Each department in the Institution arranges coaching classes for competitive exams like GATE. Students obtain study materials from the department library and central library. Workshops and training programmes are organised for soft skill development of the students. Training for aptitude and reasoning skills are organised for students through Career Guidance and Placement Unit (CGPU). Mock interviews and group discussions are regularly conducted for final and pre-final year students through CGPU.

7. Skill development (Spoken English, Computer literacy etc):

The institution provides special training for developing communication skills. Soft skill development classes are periodically organized by the CGPU. CAD training is provided for students of Mechanical and Civil Engineering departments. The Language Lab in the college helps to improve the communication skills of students. The college has appointed two faculty members for improving the communication skills of students. Students can use lab facilities beyond the working hours thereby improving their soft skills. Innovation and Entrepreneurship Development Cell (IEDC) improves the entrepreneurship skills of the students. A proposal for starting an 'UpSkill Acquisition Centre' is in progress.

8. Support for "slow learners":

The institution understands that there are students who require extra care and attention in learning as compared to other students. Advisors identify such students based on their performance in the internal assessment tests and overall conduct in class and within the campus. An advisor regularly meets these students to help them to overcome their stumbling blocks. Each department organizes remedial classes/peer-learning for those students who are struggling to cope with the demands of the course. Also, tutorial sessions in small groups are provided for such students. Re-test and makeup tests are conducted for the slow learners. Regular motivation and counselling from the faculty and proctors also help the slow learners to overcome their barriers.

9. Exposure of students to other institution of higher learning/ corporate/ business house etc:

All departments conduct educational tours and industrial visits to esteemed institutes of learning, industries, business houses, etc. The college arranges lectures/workshops by experts from reputed institutions like IITs, IISc, NITs and industries like ISRO, DRDO, CSIR etc. All departments arrange industrial visits for the students to get first-hand information about the industries and processing technologies. QEEE lectures by eminent professors from IITs and IISc are arranged

in the campus. NPTEL videos are accessible for students through the central library. Students are encouraged to do their final year project in reputed industries.

IEDC also brings up innovative ideas and exposure of its members to other institutions and the corporate world. IEDC is keen in providing the students with a glimpse of what they are going to face in the coming years and an insight into what to do. The students are brought in contact with eminent personalities from various startups or business houses and hence they learn to network and get in touch.

IEEE also plays an important role in organizing workshops and seminars by inviting eminent personalities from other institutions like IITs and business houses.

10. Publication of student magazines:

The purpose of the magazine is to facilitate the students to express their thoughts and ideas freely and also to develop and hone their literary, planning as well as management skills. Financial support is given by college for publishing the students' magazine. A group of faculty is given charge of the editorial board for assessing the quality of articles and monitoring the publication of technical and college magazine. Faculty members are also in charge of the editorial board for department technical magazines like Potentia, Chemphoria etc.

The college student magazine in 2012 named "NOORU" bagged the Malayala Manorama 'Chief Editors Trophy' for the best magazine among all the colleges in the State of Kerala.

5.1.5 Describe the efforts made by the institution to facilitate entrepreneurial skills, among the students and the impact of the efforts.

The college has always given ample importance to promote student entrepreneurship. The institution has an Innovation and Entrepreneurship Development Cell (IEDC) which organizes a number of entrepreneurship awareness programs for the students. The efforts of the institution and its impact can be seen in the rapid setting up of a very professional workspace - the IEDC room and Makers Space for our young entrepreneurs. The various other labs and workshops which are open to the requirements of the students for their non-academic projects and the faculty offer their whole hearted co-operation as well.

The activities of IEDC are not just confined to bring up innovative ideas and their execution but also involve exposure of its members to other institutions and the corporate world. Through sessions like Start Up Sunday, IEDC is keen in providing the students with a glimpse of what they are about to face in the coming years and also an insight into what has to be done. The students are brought in contact with eminent personalities from various start-ups or business houses and hence they learn to network and get in touch.

IEDC in TKMCE has been divided into three sections:

1. Makers Forum - revolves around Maker's Space, having all the facilities and resources required for a student to experiment on innovative ideas and make use in their DIY (Do It Yourself) projects.
2. Innovation and Research Cell - foster innovation and research among students by conducting brain storming sessions to evolve solutions for challenging design issues in the practical domain.
3. Open Source Software Community It is a collaboration of IEDC and enthusiastic young free software developers in the college. Its main objective is to provide a

platform for students to learn more about the systems, to make them feel comfortable in handling the free and open source software by promoting code literacy and open source software within and outside the college.

Activities of IEDC

An interactive session with Mr. Aditya Nair, Startup Village representative to talk about entrepreneurship scenario in Kerala was organised. The session mainly concentrated on the opportunities awaiting prospective entrepreneurs in TKMCE. A one day technical camp organised by IEDC TKMCE in association with Microsoft was conducted to develop apps on the Windows platform. IEDC TKMCE conducted an in-house contest to design the interior of proposed FAB Lab in which two selected designs were awarded a cash prize of Rs. 5000. To develop a sustainable entrepreneurial ecosystem, IEDC TKMCE organised the District Student Entrepreneurs Meet 2015 in association with Kerala State Industrial Development Corporation Ltd, Kerala Start Up Mission, Kollam Management Association and Institute of Engineers, Kollam Chapter. A three day workshop organized by Kerala Start Up Mission (KSUM) in association with Open Fuel was hosted by IEDC, TKMCE. A brainstorming session is scheduled every Monday evening, to discuss about the new trends or innovations in the technological world. To find out the best maker among the members of IEDC, competition is held once in every month. Inspiring lecture session with a member of start-up Village or some other eminent personality/entrepreneur is scheduled every Sunday.

Impacts

Students of TKMCE bagged the overall championship in Tathva '15 - the techno managerial fest of NIT, Kozhikode. IEDC TKMCE played a pivotal role in mentoring the students and providing them with the required assistance in their projects for the various events they participated. The effort at OLPV (One Library Per Village) has been to promote literacy, coordinate community activities and build sustainable ICT solution, infrastructure and resources in every village libraries for the public, thereby addressing digital divide. OLPV has been recently selected among the best 20 public initiatives under Digital India. The Start-Up firm Machiniser is committed to offer excellent IT solutions and services to its customers. They offer high quality services in website designing and development, mobile application development, online marketing, website maintenance, business applications and other IT services.

5.1.6 Enumerate the policies and strategies of the institution which promote participation of students in extracurricular and co-curricular activities such as sports, games, quiz competitions, debate and discussions, cultural activities etc.

The institution encourages the students by providing financial assistance to participate in co-curricular activities, such as quiz competitions, seminars and conferences and cultural activities. The students have also brought laurels to the institution by winning various competitions. Grace marks are awarded as per University norms for those students who participate in University level competitions.

Flexibility in internal examination in the form of make-up test is arranged for those students who participate in various curricular and co-curricular competitions. Proper recognition is given to the winners of various competitions.

The college has an NSS unit and cultural clubs which are coordinated by members of the faculty. Each department has an association, which organises technical sessions with invited experts from respective engineering streams for the benefit of students.

Cultural clubs organize various events apart from the annual cultural and professional competitions. Students enthusiastically participate in the annual techno cultural theme-based fest organised by the college union. Students are encouraged to participate in intercollegiate competitions also.

Sports council

Policy and Working Procedure: The Sports Council consists of the Principal as the Chairman, HoD (Physical Education) the Secretary, and representatives from the faculty, students, non-teaching staff and other employees.

The sports council has the following basic functions:

- Formation of the sports calendar
- To ensure better participation of students and staff in the sports & games related activities
- Provide organized training and practices for various sports and games.
- Create a better sports environment that may stimulate a disciplined campus setting
- Planning and organization of all sports related events

Additional academic support, flexibility in examinations

- Duty leaves are sanctioned for students participating in various competitions
- Make up class for the class hours lost are arranged, if needed
- Retest for the series examination is given on prior permission, if needed

Special dietary requirements, sports uniform and materials

- Gymnasium is provided in college as well as selected hostels
- Sports uniform is provided for participants in competitions
- Sports materials are supplied for practice and tournaments

5.1.7 Enumerating on the support and guidance provided to the students in preparing for the competitive exams, give details on the number of students appeared and qualified in various competitive exams such as UGC-CSIR-NET/UGC-NET/ SLET/ ATE/ CAT/ GRE/ TOFEL/ GMAT/ Central/ State services, Defence, Civil Services etc.

The institute provides support and guidance to the students in preparing for the various competitive exams. Notifications related to competitive examinations are informed in time by displaying the same in the notice board for the awareness of students. The institution also provides the facility to access NPTEL e-learning materials and e-journals. CGPU organises online coaching for GATE examination. Individual departments also provides coaching classes for GATE examination. Reference books for competitive examinations are available in the department and central libraries. The list of students from different branches who have qualified in the GATE examination is given in Table 5.1.4

Table 5.1.4 No. of students qualified in GATE Examination

No	Year	CE	CHE	ME	PE	CSE	ECE	EEE	Architecture
1	2011-12	78	12	26	12	8	12	12	8
2	2012-13	68	15	40	11	5	4	38	2
3	2013-14	50	25	29	3	4	14	10	3
4	2014-15	36	5	1	1	4	1	3	5
5	2015-16	50	10	4	0	12	2	9	12
6	2016-17	20	10	0	0	10	0	8	5

5.1.8 What type of counselling services are made available to the students (academic, personal, career, psycho-social etc.)

Personal and career counselling for the students are arranged by the institution as per the recommendation from senior advisers and HoDs. Students who may need special attention and care are identified and directed to an expert counsellor with the consent of their parent/guardian. The women's cell also arranges special counselling for the girl students. The Students Welfare Committee administers and makes decisions concerning student welfare, takes up issues reported by students and resolves them by bringing them to the notice of the Principal.

5.1.9 Does the institution have a structured mechanism for career guidance and placement of its students? If yes, detail on services provided to help students identify job opportunities and prepare themselves for interview and the percentage of students selected during campus interviews by different employers (list the employers and the programmes)

Yes. Career Guidance and Placement Unit (CGPU) have been functioning effectively in the institution since 1986 onwards.

The CGPU of the college works as a team under the leadership of the CGPU co-ordinator. The team consists of committee members from each department and a group of dedicated students. Every activity of CGPU is monitored by the co-ordinator. The placement unit is committed to invite reputed companies to facilitate the recruitment process in the campus. The CGPU plays a vital role in enabling the students to secure employment in multi-national companies (MNCs) and reputed organizations through campus recruitment.

The CGPU also assists students in industrial visit/training and projects outside the institute (Industries/ R&D organizations). The CGPU arranges periodic soft-skill training and personality development programmes. The major recruiters include companies from IT and IT enabled services, banking and finance, construction, the Indian Army, etc.

Experts from the industry and potential employers of our graduates or alumni often visit the college and interact with faculty and students to enlighten them about the challenges faced by the industry. Inputs from the industry are also sought while designing the curriculum.

Services of CGPU

- Liaison with industry
- Identifies the requirements and provide soft skills training to students
- Student academic counselling
- Arrange campus interviews
- Industrial training and placement of students
- Propose annual budget of CGPU

The Table 5.1.5 provides the details of placement offers from various recruiting companies.

Table 5.1.5 Details of Placement as on March 2017

Company	CHE	CE	CSE	EEE	ECE	ME	PE	MCA	M.TECH IIC	MTECH CSE	MTECH CE	M TECH ECE	.TECH IRCE	TOTAL
TISMO			6		1									7
QBurst (via intern)			4											4
TCS DESS														0
TCS GEN	11	20	10	16	20	22	6		1	5	1	3	1	116
ACCENTURE	15	19	21	25	18	26	4	3						131
QUEST GLOBAL			3	2	2									7
INDIAN NAVY	1													1
ENVESTNET			2	3	2	1								8
PredMac					2									2
EY Global						18	2							20
RMC Engineering														0
ZOHO			3											3
Fleet Management						3								3
BOSCH						1	1							2
IOAGPL						1	1							2
TEKNOWMICS			1	2							1			4
FEDERAL BANK	1	1			1	1								4
KAAR			1											1
ALLGO			4											4
HUAWEI			3											3
PLANT LIPIDS	3													3
GES InfoTek				2	1									3
M & M						1								1
MRF	2			3		4	1							10
NEST			1									2		3
BERGER	1													1
VMware			3											3

TRAVANCORE ANALYTICS			3	2	3								8	
SUNTEC											1		1	
FLYTXT			5										5	
ZAFFIN			3		1								4	
TRIASSIC			2	1	1								4	
ORACLE			5		1								6	
TOTAL OFFERS	34	40	80	56	53	77	#	3	1	5	2	6	1	374
TOTAL STUDENTS PLACED	25	36	36	45	35	47	8	3	1	5	1	4	1	249

Table 5.1.6 provides the percentage of eligible students who obtained placement during previous four academic years.

Table 5.1.6: Details of Placements during previous four academic years

No.	Department	Academic Year											
		2012-13			2013-14			2014-15			2015-16		
		Eligible Students	Placed Students	% Placed	Eligible Students	Placed Students	% Placed	Eligible Students	Placed Students	% Placed	Eligible Students	Placed Students	% Placed
1	CHE	40	7	17.5	49	9	18.36	46	7	15.21	52	23	44.23
2	CE	103	29	28.16	104	21	20.19	106	21	19.81	125	77	61.60
3	CSE	44	38	86.36	36	29	80.55	44	33	75	56	45	80.35
4	ECE	82	56	68.29	72	53	73.61	47	39	82.97	56	45	80.35
5	EEE	97	53	54.64	92	46	50	79	47	59.49	77	54	70.12
6	MCA	20	13	65	25	9	36	22	8	36.36	18	15	83.30
7	ME	93	35	37.63	101	35	34.65	88	56	63.63	85	55	64.70
8	PE	22	6	27.27	20	8	40	19	6	31.57	25	16	64.00

5.1.10 Does the institution have a student grievance redressal cell? If yes, list (if any) the grievances reported and redressed during the last four years.

Yes. A Grievance Redressal Cell is constituted with a Professor as Chairman to address the grievance of students. Formerly, grievances of students were handled by Students Affair Committee (SAC).

List of grievances reported and redressed during past 4 years (SAC):

1. Initiated to reopen the gate near the Chemical Block
2. Subscription from first year students for the Technical Fest, Tezoro was done through SAC.
3. SAC conducted a prima facie enquiry on students' disciplinary issues.
4. Duty leave issues were addressed by the SAC.
5. Anti ragging awareness camps were organised by SAC.

In addition to the Grievance Redressal Cell, an Anti-Ragging Cell is also functioning effectively in the college for helping students. The Hostel Management Committee (HMC) headed by the Chief Warden and the Deputy Chief Warden addresses the grievance of hostel employees regarding salary hike, working hours etc. HMC also addresses the grievances of students in the management of the hostel. The Women Cell is constituted with a female faculty as Chairperson and girl students as members to address the grievances of women. Also, the Staff Club of the college with the Principal as President, a faculty member as Secretary and members from each department as representatives functioning in the college addresses the grievance of faculty members.

5.1.11 What are the institutional provisions for resolving issues pertaining to sexual harassment?

- As per the Gazette notification of Government of India, an Internal Complaints Committee has been setup in the institution to deal with the prevention, prohibition and redressal of sexual harassment of women at workplace. The committee takes required steps to ensure a safe working environment for each woman within the institution.
- To protect and safeguard the rights of girl students and to bring about growth and development, a Women Cell also functions in the college. The aim of the Cell is to create awareness among girl students about their duties and rights and to provide a conducive environment for women staff and students. The cell, headed by a senior lady faculty, looks into any matter related to harassment of women faculty or students. The institution has taken a decision to handle very strictly against sexual harassment, if any.
- The Staff Club also addresses the grievances of faculty members. Sexual abuse and harassment has not been reported so far.

5.1.12 Is there any anti-ragging committee? How many instances (if any) have been reported during the last four years and what action has been taken on these?

Yes. There is an Anti-ragging Cell. An anti ragging squad is functioning under this cell.

The Anti-ragging Cell functioning in the campus offers protection to the students from the menace of ragging. Staff members from different departments are the members of the committee. Monitoring is done on regular basis at all prominent zones of students' interaction. The college has hoarded awareness boards along with contact details inside the campus and hostel premises for reporting complaints, if any.

Functions and Responsibilities:

- To ensure a ragging free campus by implementing the directions from regulatory bodies
- Formulate anti ragging squads and supervise their activities
- Arrange display boards enhancing anti ragging
- Arrange anti ragging awareness programmes for the students/parents/faculty and staff with the help of government authorized agencies/ organizations

- Collect affidavits against ragging from the students/ parents/faculty and staff
- Initiate follow up action on reported/noticed incidents of ragging
- Forward the enquiry reports to the Principal for further disciplinary actions

Two ragging incidents have been reported during the last four years. The incidents were reported to the police and actions were taken as per anti-ragging rules.

5.1.13 Enumerate the welfare schemes made available to students by the institution

- The Student Affairs Committee addresses matters pertaining to the welfare of both the undergraduate and post graduate students in the institute.
- Merit cum Means Scholarship is given to the eligible students of all branches.
- Faculty of TKMCE also instituted an MCM scholarship for the welfare of students.
- Alumni also give scholarships to financially underprivileged meritorious students.

- The college provides a number of scholarships and free books to the students on the basis of their performance in academics, sports or extra-curricular activities.

- Provide financial support for attending conferences, seminars, sports and other major events

- United India Insurance Company Ltd. offers a special insurance scheme to the students of this college covering the needs of the students and their parents.

5.1.14 Does the institution have a registered Alumni Association? If yes, what are the activities and major contributions for institutional, academic and infrastructure development?

Yes. The institution has a registered Alumni Association, with a view to keep the silken threads of the attachments between the old students and their alma mater. All the students of the college shall be eligible to become members of the association. The Alumni Association helps to build a network of the alumni and helps in being in touch with the corporate world. In addition to the parent Alumni Association, various alumni chapters are actively functioning at various places within the country and abroad. Few of the prominent foreign alumni chapters are at Tanzania, Kuwait, UAE, Sultanate of Oman, Bahrain, and Qatar.

Activities of Alumni Association during 2011-12

1. Distributed Scholarships of Rs.30,000/- to financially underprivileged meritorious students. The amount was contributed by the UAE chapter of alumni.
2. Books worth Rs 70,000/- were distributed to department libraries.
3. A meeting with Dr. Raju Narayana Swami IAS as chief guest was arranged for felicitating our alumni who had been successful in various Civil Service Examinations.
4. Arranged Merit Evening for honouring students who had performed excellently in University examinations.

5. Silver Jubilee Reunion of 1986 batch Alumni and 20th year reunion of 1991 batch alumni were organized in TKMCE.

Activities of Alumni Association during 2012-13

1. Distributed Scholarships of Rs.69,500/- to financially underprivileged meritorious first year students.
2. Books worth Rs 50,000/- were distributed to department libraries.
3. Rs100,000/- was given for enhancing the speed of campus WiFi.
4. A financial support of Rs 50,000/- was given for conducting Course Completion Ceremony of outgoing undergraduate students.
5. Arranged Merit Evening with Janab V.K. Ebrahim Kunju, Minister, PWD as Chief Guest for honouring students who had performed excellently in University examinations
6. Silver Jubilee Reunion of 1987 batch Alumni was organized in TKMCE.

Activities of Alumni Association during 2013-14

1. Installed an Electronic Notice Board in central portico by spending Rs 70,000/-
2. Rs 520,000/- was spent for beautification programme in front of Mechanical block and Chemical block.
3. Arranged Merit Evening with Mr. Sheikh Pareeth IAS as Chief Guest for honouring students who had performed excellently in University examinations and those who had outperformed in arts and sports.
4. Silver Jubilee Reunions of 1988, 1st and 2nd batches were organized in TKMCE.
5. A grand function was organized to honour our distinguished alumni by presenting 'TKM Alumni Achievement Awards'.

Activities of Alumni Association during 2014-15

1. An amount of Rs 150,000/- was given by the Muscat chapter for giving scholarships and the committee decided to give a onetime scholarship for an amount of Rs12,500/- each to twelve financially underprivileged students from first year UG class.
2. The Qatar Chapter of the Alumni Association contributed Rs 100,000/ for giving onetime scholarship for eight final year students for an amount of Rs. 12,500/ each.
3. The committee has decided to support MCM scholarships scheme of the college and Rs 115,000 was transferred to the account of MCM.
4. From the interests of the fixed deposits, scholarship of Rs.5000/- each were given to eight second year students and three first year students.
5. With the support of Alumni Association, an induction program was conducted by CGPU for the first year students to place them in the right track of engineering education.
6. The cultural fest of students RITHU-14 was supported by Alumni Association with an amount of Rs 25,000/- .
7. A travel grant of Rs 5000/- for participating in the National level competition held at IIT, Mumbai was given to the students who won zonal level competition in Robotics.
8. Scholarships were given to outstanding students from all branches during AGM organized on 26th January.

Activities of Alumni Association during 2015-16

1. An amount of Rs 100,000 was given by Qatar Alumni Chapter for giving Scholarship and the committee decided to give one time scholarship to UG students and the amount was disbursed to 8 sixth semester students. The decision was made by respective senior advisers .Committee decided to donate an amount of Rs 1, 15,000/- tp MCM Scholarship fund
2. Committee decided to support the students who won zonal level robotic competition with Rs 5000/- as travel expenses to participate in the national level competition at IIT Bombay .
3. The cultural fest of students RITHU 15 was supported by an amount of Rs 30,000/-. The fest was attended by hundreds of students from various Engineering colleges in the state.
4. The committee decided to support maintenance of the shuttle court in our college with an amount of Rs 30,000/- as per the request from HOD Physical education
5. There was general opinion in the committee to encourage genuinely useful engineering projects from the final year students. Committee had a long deliberation on this matter and decided to support one product oriented UG project each from all department . Rs 40,000/- has been sanctioned to this purpose (7 BTech project and one B Arc project).
6. The committee decided to give Rs 50,000/- for upcoming FAB lab(APJ Dream park) for purchasing electrical accessories
7. Committee decided to communicate with various alumni chapters inside and outside the country for getting ideas , suggestions and intellectual contributions to complete the dream FAB lab project
8. As per the request from the principal , the committee has decided to support the renovation work in the college library and decided to give amount of Rs2,50,000/-
9. The committee has decided to give Rs 5000/- each to 40 first year deserving students on the basis of Merit Cum Means
10. Two awards are instituted by TKMCE 60 plus for the best outgoing and the best deserving first year student. The guidelines for the selection was given by TKMCE 60 plus and committee has carried out the selection procedures. Mrs. Darshitha Babu of Mechanical engineering won the award of the best outgoing student and Mr. Noufal C.S of EEE has been selected as best deserving first year student
11. The committee decided to honor 1966 batch on the 50th year of graduation

Activities of Alumni Association during 2016-17

The major activates are listed below :

1. An amount of 2.1 lakhs(1.5 lakhs from Kuwait alumni and Rs 60000 from Alumni association) was given to all department to support UG project
2. Committee decided to give Rs 1 Lakh final years Onam Lunch
3. The committee decided to support for purchasing 5 new desktop computer for CAD/ CAM Lab of Mechanical Engineering Department

Financial support of Rs 60000 was given to students of Mechanical Engineering for SAE project

4. Rs 5000 support was given to students to attend Tatwa at Nit Calicut
5. Rs 2 lakhs received from Kuwait alumni was transferred to scholarship account
6. Two awards were instituted by TKMCE 60 plus for best outgoing students and best deserving first year student. Dia Ninaka Nair of computer science Engineering won the award of best outgoing Students and Deepika Krishna of Electrical and Electronics has been selected as the best deserving first year students
7. The committee decided to honor 1967 batch on their 50th year of graduation.

The committee decided to give Rs 50000 /- for purchasing surveillance camera for

enhancing women's safety in the campus

Institutional Contribution

- Honouring the meritorious students.
- Proficiency awards given to the best students who pass out from each branch of engineering considering curricular and extracurricular activities.
- Merit certificates awarded to the student who secures maximum marks for B.Tech/ B.Arch/ M.Tech/MCA/Part-time degree examination from each branch of Engineering.

Academic

- The UAE Alumni chapter has offered two scholarships of Rs.500/-month to two students. The student will be selected on merit-cum-means basis.
- Financial support is provided to library for purchase of books.

Infrastructure

- Development of Shuttle Court
- Contribution towards PTA Hall and Cafeteria
- Beautification of College Campus
- Maintenance of Badminton Court
- Purchase of new Table Tennis Board

5.2 Student Progression

5.2.1 Provide the percentage of students progressing to higher education or employment.

Table 5.2.1 provides the information about student progression in various departments.

Table 5.2.1 Student Progression

Student Progression	Year of Pass out			
	2013	2014	2015	2016
Architecture				
UG to PG	52%	50%	17.70%	31.00%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NIL	NIL	NIL	NIL
Employed through campus selection	NIL	NIL	NIL	NIL
Employed other than campus recruitment	29%	35%	82%	55%
Civil Engineering				
UG to PG	46.5%	43.1%	42.85%	32.5%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NIL	NIL	3.30%	NA
Employed through campus selection	21.8%	15.3%	15.5%	50.00%
Employed other than campus recruitment	14.8%	28.5%	17.2%	17.50%
Chemical Engineering				
UG to PG	27.03%	20.00%	12.90%	12.68%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NIL	NIL	NIL	NIL
Employed through campus selection	9.46%	12.86%	12.90%	32.39%
Employed other than campus recruitment	33.78%	28.57%	19.35%	12.68%
Computer Science and Engineering				
UG to PG	18.64%	8.77%	5.55%	3.70%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NIL	NIL	NIL	NIL
Employed through campus selection	64.40%	50.87%	61.11%	74.07%
Employed other than campus recruitment	8.47%	7.01%	3.70%	1.80%
Electrical and Electronics Engineering				
UG to PG	31.4%	4.92%	1.48%	5.90%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NA	NA	NA	NA
Employed through campus selection	43.8%	40.98%	45.92%	46.60%

Employed other than campus recruitment	1.65%	2%	4%	4.2%
Electronics and Communication Engineering				
UG to PG	21.3%	16.8%	1.5%	2.0%
PG to M.Phil	NA	NA	NA	NA
PG to Ph.D	NIL	NIL	NIL	NIL
Employed through campus selection	51.58%	49.53%	59.09%	45.00%
Employed other than campus recruitment	13.88%	18.69	NIL	NIL
Mechanical Engineering				
UG to PG	32%	23.43%	6.81%	4.71%
PG to M.Phil.	NA	NA	NA	NA
PG to Ph.D.	NIL	5.5%	6.67%	1.00%
Employed through campus selection	29.6%	31.25%	63.63%	64.67%
Employed other than campus recruitment	22.4%	28.13%	22.73%	14.11%
Mechanical Stream Production Engineering				
UG to PG	20.6%	14.7%	5.5%	0%
PG to M.Phil.	NA	NA	NA	NA
Employed through campus selection	21.21%	22.3%	20.5%	74.07%
Employed other than campus recruitment	22.4%	28.13%	18.5%	1.80%

MCA				
PG to M.Phil.	NIL	NIL	NIL	NIL
PG to Ph.D.	NIL	NIL	NIL	NIL
Employed through campus selection	60.71%	52%	34.48%	31.00%
Employed other than campus recruitment	17.8%	28%	17.20%	32.14%

The college has been consistently encouraging students to go for higher education apart from seeking employment. Special coaching classes are regularly being held in the campus to encourage students in this respect. A number of students have joined PG courses so far, as testified by Table 5.2.1.

5.2.2 Provide details of the programme wise pass percentage and completion rate for the last four years (cohort wise/batch wise as stipulated by the University)? Furnish programme-wise details in comparison with that of the previous performance of the same institution and that of the Colleges of the affiliating University within the city/district.

Table 5.2.2 Pass Percentage for the last four years

UG Programme	Year of Pass out			
	2013	2014	2015	2016

Architecture	56.75	65	100	83
Civil Engineering	74.5	72.22	82.50	80.92
Chemical Engineering	70.2	64.3	88.70	79.86
Computer Science & Engineering	76.30	74.00	81.5	68.25
Electrical & Electronics Engineering	78.99	74.79	72.22	68.4
Electronics & Communication Engineering	79.6	74.8	74.2	75.67
Mechanical Engineering	75	76.38	72	56
Mechanical Stream Production Engineering	66.67	58.82	56	70
P.G.Programme				
Civil Engineering (Structural Engineering and Construction Management)	88.24	88.89	83	83
Computer Science & Engineering	NA	81.25	82.4	82.4
Electronics & Communication Engineering	NA	76.47	68.7	100
Mechanical Engineering(Cryogenic Engineering)	100	100	100	88
Master of Computer Application	85.71	80	86.2	71.4

Table 5.2.3 Position in University out of 43 affiliated Engineering Colleges

UG Programme	Year of Pass out			
	2013	2014	2015	2016
Architecture	2	1	1	1
Civil Engineering	3	2	2	3
Chemical Engineering	1	1	1	1
Computer Science & Engineering	2	1	1	3
Electrical & Electronics Engineering	2	1	3	2
Electronics & Communication Engineering	3	4	4	4
Mechanical Engineering	3	1	1	4
Mechanical Stream Production Engineering	1	2	2	1
PG Programme				
Civil Engineering (Structural Engineering and Construction Management)	1	1	1	1
Computer Science & Engineering	NA	4	1	1
Electronics & Communication Engineering	NA	1	1	1
Mechanical Engineering	1	1	1	1
Master of Computer Application	1	2	2	5

Table 5.2.2 and 5.2.3 show that the students of TKMCE have enviable academic achievements, as reflected in the University examination results and also active participation of students in training and placement activities, the college has earned a reputation of its own as one among the top four for all courses in Kerala University having 43 affiliated engineering colleges under it.

5.2.3. How does the institution facilitate student progression to higher level of education and/or toward employment?

TKM College of Engineering believes in not just providing quality education but also in giving students a fair chance to use the acquired knowledge, by helping them get placed/employed in reputed organizations. CGPU has been instrumental in inviting reputed firms to the institution to recruit students through on-campus placement drives and job fairs. The cell provides training programmes to make students better-equipped to face such recruitment tests and interviews. Higher educational opportunities in nationally and internationally acclaimed institutions are also intimated to the students regularly by the cell and also by individual departments. Each department organizes special classes and training classes for students who are preparing for competitive examinations, namely, GATE. The institution has always remained affirmative to students receiving in-plant training in well-known organizations to foster an engineering thinking and technical skill in them. Seminars, workshops and talks by eminent personalities are organized by the institution to help students to be better technocrats.

5.2.4. Enumerate the special support provided to students who are at the risk of failure and drop out?

The institution understands that there are students who require extra care and attention than others. Such students ('at risk' students) are identified and supported at the department and institution level. Individual advisors identify such students based on their performance in the internal assessment tests and overall conduct in class and campus. Advisors regularly meet these students to try and help overcome their stumbling blocks. To aid such students, each department organizes remedial classes for those who are struggling to cope with the demands of the course. The performance of students in assessment tests and their conduct at college is communicated with parents. PTA meetings are organized by the college department-wise to facilitate discussions about student's curricular and extra-curricular performances. On the basis of feedback a support mechanism is formulated based on remedial/peer-learning exercises. These initiatives build confidence in them in creating an 'I can' attitude and may help such students perform well.

5.3 Student Participation and Activities

5.3.1 List the range of sports, games, cultural and extracurricular activities available to students. Provide details of participation and program calendar

The college is keen on instilling a healthy sports culture in the students. Sports are an inextricable link to all-round personality development. As such, the college is careful on providing top-notch amenities for the students. The college is having a 'sports council' which is entrusted with all activities related with sports and games. The faculty-in-charge of physical education, trains the students to their full potentials in various sports activities with the help of qualified trainers. Students are given opportunities to take part in various tournaments. The healthy sports culture is evident in the college off-hours, especially in the evenings, when most of the students are seen preoccupied with sports activities of their choice.

List of Sports Instructors:

1. Mr. Manesh Rasheed, MPE , (Head, Dept. of Physical Education)-Football
2. Mr. Ramesh P. B, Coach Football, AFC B License (Guest)

3. Mr. Shaju, Coach Basketball (Guest)
4. Mr. Mohanachandran, NIS, Coach Badminton (Guest)

List of sports and games facilities available

1. Football field
2. Cricket field
3. Cricket nets
4. Basketball court
5. Indoor shuttle badminton court
6. Volleyball court
7. Tennis court
8. Multi Gymnasium
9. Table tennis hall
10. Judo Arena
11. Specialist trainers arranged to train the students for specific events

Around 120 students participate in inter-collegiate tournaments every year. Most of the students participate in the Annual Sports Meet. Large number of students practice sports and games in the morning and evening regularly for physical fitness. The sports calendar for the current year 2015-16 is shown in Table 5.3.1 and details of Activities and Achievements in the year 2016-17 is given in Table 5.3.2

Table 5.3.1 Sports Calendar 2015-16

No.	Event	Date
1	Kerala State Shuttle Badminton Championship 2015-16	2-6 Sept. 2015
2	George Joseph Memorial Inter Collegiate Foot Ball Tournament 2015 –16	18-22 Sept. 2015
3	Kerala University North Zone Inter-Collegiate Shuttle Badminton Men Tournament 2015-16	22-26 Sept. 2015
4	Kerala University North Zone Inter-Collegiate Foot ball Men Tournament 2015-16	1-28 Oct. 2015
5	Kerala University Women Tennis Championship 2015-16	31 st Oct. 2015
6	Kerala University Judo Men and Women Championship 2015-16	5 th Dec. 2015
7	Kerala University Base Ball Women Championship 2015 – 16	10 th Dec. 2015
8	Kerala University Men Tennis Championship 2015-16	2 nd week of Dec. 2015
9	Annual Athletic Meet 2015-16	22 nd Jan. 2016
10	Asokan Memorial Basket Ball Inter Collegiate Tournament 2014-15	Jan. 2016
11	Kutty Krishnan Memorial Inter Collegiate Volley Ball Tournament 2015-16	Jan. 2016
12	Inter Semester Tournaments, Inter Branch 2015-16	1 st Feb.2016 onwards
13	Coaching Camp for College Teams and Beginners Coaching Camp 2015-16	Jan./Feb.2016

Table 5.3.2: Details of Activities and Achievements 2016-17

Achievements		
1.	Football (Men)	: Champions APJ Abdul Kalam Technological University B Zone Football Men Championship 2016-17 held at TKMCE : Runner –up Kerala University north Zone football championship held at TKMCE
2.	Basket ball (Men)	: Champions APJ Abdul Kalam Technological University B Zone BASKETBALL Men championship 2016-17 held at IHRD, Adoor
3.	Tennis (Women)	: Runner-up in the Kerala University Tennis Women Championship held at TKMCE
4.	Tennis (Men)	:Third place in the Kerala University Tennis Men championship held at Tennis Complex, Kumarapuram.
5.	Volley ball (Men)	: Champions APJ Abdul Kalam Technological University B Zone Volley ball Men championship 2016-17 held at Bishop Jerom College, Kollam
6.	Table Tennis (Men)	: Champions APJ Abdul Kalam Technological University B Zone Table Tennis Men championship 2016-17 held at UKFCE, Parippally
7.	Cricket (Men)	: Runner-up APJ Abdul Kalam Technological University Cricket Men championship 2016-17 held at Asramam
8.	Chess (Men & Women)	: Runner-up and second runner-up in the Kerala University Chess Men and Women championship held at D.B College, Shasthamkottah
9.	Judo (Men)	: Mohammed Akheel (A7) Gold medal in the Kerala University Judo men championship 2016-17 held at Bishop Moare College, Mavelikkara.
10.	Body building	: Vishnu of MCA secured third place in the Kerala University body building championship held at

		Adoor.
11.	Chess (Men)	: Adarsh S. champion in the Kerala University Individual Chess championship held at D.B. College, Shasthamkotta.
12.	Football (Men)	: Champions Amrita trophy 2017 : Champions Bhddha trophy 2017 : Champions YCET trophy 2017
13.	Volley ball (Men)	: Champions BMC volley 2017
Tournaments conducted		
1.	Annual Athletic meet	15 th and 16 th February 2017
2.	George Joseph memorial Football Tournament Kutty Krishnan memorial Volleyball tournament	8 th and 9 th March 2017
3.	1 st Shaheer memorial Cricket tournament	11 th and 12 th February 2017
4.	Inter branch tournament	March 2017
5.	Beginners coaching camp	March 2017
6.	Kerala University North-Zone Football Men Championship 2016-17	: 15 th to 30 th October 2016.
7.	Kerala Technological University Football Men championship 2016-17	: 5 th and 6 th November 2016
8.	Kerala Technological University Cricket Men championship 2016-17	: 26 th and 27 th November 2016
9.	Kerala university tennis women championship 2016-17	:7 th September 2016
10.	Kerala university inter zone shuttle badminton men and women championship 2016-17	1 st September 2016
11.	Kerala university north zone shuttle badminton men championship 2016-17	September 2016

Extracurricular and Cultural Activities

The students are motivated to participate in cultural and other extracurricular activities. The college arts fest is conducted every year to encourage students to

participate in the University arts festival. Music Club, Drama Club and Photographic Club of TKMCE also motivate students to participate in various cultural activities.

Details of extracurricular activities

NSS Activities

The NSS unit of the college is enthusiastic to organize various activities for the benefit of the society. The funds for the various activities are provided by the University. NSS volunteers are students from various departments. The activities of NSS play a vital role in inculcating commitment to the society. The NSS unit received IMA Award for the blood donation activities on 14.06.2015. The various activities of NSS Cell for the last two academic years are listed in the Table 5.3.3.

Table 5.3.3 Activities of NSS Cell 2015-2016 & 2016-2017

Activities of NSS Cell 2015-2016		
No	Event	Date
1	Started E-Literacy programme at Balabhavan, Kollam	12/09/2015
2	Conducted a socio economy survey at adopted village	20/09/2015
3	Anti dowry campaign was conducted in association with PTA at Jubilee Hall.	28/09/2015
4	Street play on “Blood donation” for exhibiting the importance of blood donation inside the campus	01/10/2015
5	Gandhi Jayanthi day- 2 nd Oct., Participated on the rally conducted by the Kollam district authorities and Gandhi peace foundation.	02/10/2015
6	Kollam Asramam ground cleaning and orientation by first year students were conducted	02/10/2015
7	Meeting at Saraswathi hall, Public library, Kollam to discuss the “Jeevadhayini” blood donation data bank. About 500 registrations were done by our unit and submitted on 26/10/2015	07/10/2015
8	World Students Day was celebrated on the birth day of Late APJ Abdul Kalam-Conducted a debate at the lecture hall	15/10/2015
9	Saplings plantation in the campus	18/11/2015
10	Seven day special camp conducted at Meenakshi Vilasam VHSC School.	20/12/2015
List of Activities of National Service Scheme (2016-17)		
1	“ Silent Spring” – Observation of World Environment Day	4 th & 5 th June 2016
2	Yoga Training - Observation of International Yoga Day	21 st June 2016
3	Poster Design Competition – Observation of International Day against drug abuse and Illicit Trafficking	26 th June 2016
4	Jwala’ 16 – Quiz, Essay writing, GD and Seminar competitions in association with the Death Anniversary of Dr. A.P.J Abdul Kalam	27 th July 2016
5	Help Desk – During First year B.Tech Admission	11 th – 15 th July 2016

6	National Digital Literacy Mission Campaign at TKM Higher secondary School, Karicode.	12 th July 2016
7	Renovation of Pain and Palliative care block at Kollam District Hospital	30 th July 2016
8	Seminar on Oral hygiene in association with Indian Dental Association, Kollam Chapter.	6 th August 2016
9	Cleaning of Kollam Beach under Swachh Bharat Mission	6 th August 2016
10	Awareness campaign on Breast and Prostate Cancer: In association with Meditrina Hospital	10 th August 2016
11	“Azaadi 70” – Independence Day Celebrations	9 th to 23 rd August 2016
12	Observation of Sadhbhavana Day in the remembrance of Rajeev Gandhi	20th August 2016
13	Observation of Teacher’s Day	5 th September 2016
14	Vijayabheri Mission – Offering academic guidance to students of Child care homes	8 th September 2016 - till date
15	“SHADO3” in connection with International Day for Preservation of Ozone Layer	17 th – 20 th September 2016
16	NSS Day Celebration	24 th September 2016
17	“Manaveeyam” – Interaction with Transgender Person and discussion on the problem they face	25 th September 2016
18	Idea Pitching Competition – Solution to environmental problems in association with IEDC TKMCE	27 th September 2016
19	‘BALAAVAKASHAM’ – an awareness class regarding child rights was conducted at Balabhavan. The children were also taught how to remedy any violation of their rights	29 th September 2016
20	Observation of Gandhi Jayanthi	2 nd October 2016
21	Skill Development Training	20 th October 2016
22	“Visharahitha Vishu” – Organic Farm in UGC Hostel	22 nd October 2016 – 28 th December 2016

23	“Karma” 7 Day Special Camp – Renovation of Assests worth 33.5 Lakhs at Kollam District Hospital as part of PUNARJJANI Project of Govt. of Kerala.	24 th – 30 th December 2016
24	Republic day celebrations	26th January 2017
25	NSS Journey to Tribal India : Two day tour to Kodaikanal and Moonar	24th to 25th February 2017
26	School Empowerment programme at HarijanLPSchool, Kuttichira, Kilikolloor	5th March 2017
27	Campus Cleaning Mission & Energy Conservation	16th – 19th March 2017

Technical and Cultural Activities of the College

Technical fests are organised in the institute with a lot of events which help to develop the technical as well as managerial skills in addition to showcasing the cultural talents of the students. The Theme for Techno Managerial fest Tezoro-2015 was ‘Engineering Meets Humanity’. The contribution of the Literary and Debating Club of the college deserves special mention. Apart from being an avenue for expressing opinion, it plays a key role in improving the public speaking skills of the students, pooling a wide variety of ideas on a range of issues.

The Music Club has been one of the most sought after clubs in the college. Many vibrant musical events were conducted by the club. Diligent efforts are taken by the Film and Drama club to spread awareness about the technicalities involved in the film industry and the updates that have been taking place with the advent of technology. Students also participate in the University Youth Festival, and technical/ cultural fests organized by other institutes in South India. Important activities organised by the college are listed below.

- CONJURA 2010, Inter Collegiate Technical Fest with the theme ‘Taking India Forward’
- CONJURA 2011, Inter Collegiate Technical Fest with the theme ‘Engineering Innovations Empowering Rural India’
- CONJURA 2012, Inter Collegiate Technical Fest with the theme ‘Engineering a Safer and Greener Tomorrow’
- Inter College technical Fest TEZORO 2014
- Rithu 2014, an Inter Collegiate Arts Fest was held with the theme “Youth for a Drug Free World”
- Rithu 2015, an Inter Collegiate Arts Fest held on August 2015
- Inter Collegiate Technical Fest TEZORA 2015 with the theme “Engineering Meets Humanity”
- CONJURA 2016, Inter Collegiate Techno Managerial Fest.

Inter semester arts festival

- The inter semester arts festival is organized every year by college union, to showcase the cultural talents of the students.
- The arts festival "TARANG" 2011 got special appreciation.
- The inter semester arts festival "RED" 2013-2014, included 63 events encompassing cultural, literary and managerial capabilities

5.3.2 Furnish the details of major student achievements in curricular, co-curricular and extracurricular and cultural activities at different levels : University /state /zonal /National /International etc for previous 4 years.

(a) Students Achievements in Curricular Activities.

2011

1. Ahiram G. Sankar, Computer Science department secured 4th Rank in All India Civil Service Examination, 2011.
2. Deepak Scaria, Computer Science department secured 2nd Rank in B.Tech Degree Examination, University of Kerala, 2011.

2012

1. Ancy A, Civil Engineering department secured first rank in B.Tech Degree Examination in University of Kerala in the year 2012.
2. Mathew Alexander, Computer Science department secured 2nd Rank in B.Tech Degree Examination, University of Kerala, 2012.
3. Kavitha Krishnan , Computer Science department secured 2nd Rank in B.Tech Degree Examination, University of Kerala, 2012.
4. Mathew Alexander, Computer Science department won Best Student Award by Tata Consultancy Services (TCS) 2012.
5. Rahul M.R, Mechanical Production Engineering department secured 1st rank B.Tech Degree Examination, University of Kerala, 2012.
6. Sneha E. Mahesh, Chemical Engineering department secured 1st rank B. Tech Degree Examination, University of Kerala-2012.
7. Remya Venugopal, Electronics and Communication Engineering department secured 1st rank in B.Tech Degree Examination, University of Kerala, 2012.

2013

1. Jestin Thomas, Mechanical Production Engineering student secured 1st rank in B.Tech Degree Examination, University of Kerala, 2013.
2. Gevargis M Thomas, Chemical Engineering department secured 1st rank in B.Tech Degree Examination, University of Kerala, 2013.
3. Meenu Jayamohan, Electrical and Electronics Engineering department secured 1st rank in B.Tech Degree Examination, University of Kerala, 2013.

2014

1. Aswathy Rajendran, Civil Engineering department, secured second rank in B.Tech degree exam in the year 2014. In addition, the students in Civil Engineering secured 3, 4, 5, 7, 8, 9 and 10th ranks.
2. Priyanka V., Computer Science Engineering department secured 1st rank in B.Tech Degree Examination, University of Kerala, 2014.
3. Rohini G Nair, Computer Science Engineering department secured 2nd rank in B.Tech Degree Examination, University of Kerala, 2014.
4. Nikhil P, Computer Science Engineering department won Best Project Award, 2014.
5. Arun Krishnan R, Mechanical Production Engineering department, secured 1st rank B.Tech Degree Examination, University of Kerala, 2014.
6. Amitha M, Chemical Engineering department secured 1st rank B. Tech Degree Examination, University of Kerala, 2014.
7. Anju L S, Electrical and Electronics Engineering department secured 1st rank B. Tech Degree Examination, University of Kerala, 2014.

2015

1. Three former students, Krishnaraj R, Bhavika Mangalanadan, and Sujith Das S were selected to Civil Services.
2. Vinnie Ann Verghese, Computer Science Engineering department secured 1st rank in B.Tech Degree Examination, University of Kerala, 2015
3. Athul M. Madhu , Civil Engineering department, won second rank in the year 2015. In addition, the students in Civil Engineering department, won 3, 4, 6, 9 and 10th ranks. Moreover, out of 17 distinctions in Civil Engineering department in Kerala University, 10 distinctions are from this college.
4. Neethu Manikandan, Computer Science and Engineering department Secured 3rd rank in B.Tech Degree Examination, University of Kerala, 2015
5. Sai Lekshmi Sreenath, Electronics and Communication Engineering department secured 2nd rank in B. Tech Degree Examination-2015, University of Kerala
6. Er. Arun L., Secured 12th rank in the IES Examination, 2015.

2016

1. Anandu Sreerag, Anoop Raj, Sachin Venu, Bibin Benny, Akshay R S won First prize in IBCC Bridge design contest at IITM
2. Krishna Priya, VipinShaji ,Rohith Ranga Prasad, Priyanka Pandey ,Mukesh Yadav, Lakshmi Sudhakaran, won Second Prize in IBCC Bridge design contest at IITM
3. Krishna Kumar Singh, MukeshYadav , Rahul Raju won First prize in Modeling competition CEA FEST at IITM
4. Abrar Abdullah attended National Adventure Camp at ABVIMAS, Narkanda. He was one among twenty students selected from all over Kerala.He was certified with 'A' grade in basic mountaineering Course.
5. Sebin Sabu and Sri Chitra got selected to JpGu-AGU Joint Meeting to present their research works.Sebin was awarded with AGU Travel Grant.
6. Asif Noushad was selected as the Student Representative of IEEE Kerala Section.
7. Research works of Sebin Sabu and Abhiram D got selected to present at the Impact of Science Conference hosted by Royal Metereological Society ,UK.
8. Hashir, Riswin, Jaseel, Jibin and Vishnu P won the regional level competition based on Industrial Automation and Scada and was selected for National Level Competition at IIT-BHU, they participated in the national levels on 26th Feb 2017.
9. Harikrishnan R was selected as the Chairman of IEEE TKM SB.
10. Bagged second prize, TCS young Innovator award (cash Prize Rs 25000) at KETCON 2017(Nirmal Kumar , Rocky S Kdamabnattu, Yazin Haris Thangal

(b) Major achievements of students in co-curricular, extra-curricular and cultural activities

The students of the college regularly participate in paper/design contest at various programmes within and outside the institution and have bagged prizes. Students have also published technical papers in various national and international conferences and journals. The detailed list is given in the Annexure.

5.3.3 How does the college seek and use data and feedback from its graduates and employers to improve the performance and quality of the institutional provisions?

The CGPU collects feedback from senior executives of various companies who visit the campus for the purpose of campus interviews. The executives also provide information on the performance of our students already placed in their companies. These feedbacks are passed on to the concerned departments to take necessary remedial actions. Based on this feedback, the departments improvise the teaching and learning process. The department also conducts Course Exit Surveys for getting the valuable feedback from the students about the curriculum. Employer surveys are conducted periodically in order to identify the skill needs and skill gaps at workplace level.

5.3.4 How does the college involve and encourage students to publish material like catalogues, wall magazines, college magazines, and other material? List the publications/material brought out by the students during the previous four academic sessions.

The college encourages students to publish their articles and research materials in different magazines and journals. The faculty members guide the students to carry out projects related to recent developments in engineering fields. Students co-ordinate with teachers in organizing and publishing magazines and participate in various national and international conferences. Technical magazines and newsletters in various departments enable the students to publish their articles. These forums bring out magazines in which the students publish their articles. The Table 5.3.4 gives the list of publications brought out by our students during the last four years.

Table 5.3.4: College Union Magazines

No	Year	Name of Magazine	Students editor	Staff editor
1	2010-2011	THE TRUE COPY	Muhammed Thaha	Dr. K.Bijuna Kunju
2	2011-2012	NOORU	Sonu Mathew	Dr. S. Ayoob
3	2012-2013	BIN	Nadir K.P.	Prof. Sudheer. A
4	2013-2014	UTHARAM	Jeffin K. Baby	Dr. K. Geetha
5	2014-2015	ITHU	Ashwin Pavithran K.C.	Prof. Muhammed Zakkeer

The college magazine ‘NOORU-2014’ bagged the first prize for college magazines in Kerala given by the most popular Malayalam daily Malayala Manorama.

DEPARTMENT LEVEL MAGAZINES

1. CIVIL ENGINEERING

Publication of technical magazines, newsletters, etc.

The department regularly publishes technical magazines by the students under the guidance of faculty. The details are given below:

- First year students' hand written magazine- 2011-2012 ATHEETHA- published by first year Civil Engineering students, won first prize among the magazines published by all other departments.
- Student Editor: Abin Babu
- First year students' hand written magazine- 2012-2013 THARANGAM- published by first year Civil Engineering students.
- Student Editor: Sajan Narayanan
- First year students' hand written magazine- 2013-2014 FACEBOOK- published by first year Civil Engineering students.
- Student Editor: Muhammed Shan
- Civil Engineering technical magazine 2013-2014 KEYSTONE- published by Civil Engineering Association.
- Student Editor: Unais Kaithakkal
- Civil Engineering technical magazine 2015-2016 EDIFICO 2015- published by Civil Engineering Association.
- Student Editor: Sajan Narayanan
- Civil Engineering technical magazine 2016-2017 EDIFICO 2016- published by Civil Engineering Association.
- Student Editor: Arjun
- Civil Engineering technical magazine 2016-2017 KEYSTONE- published by Civil Engineering Association.
- Student Editor: Arjun

2. ELECTRICAL ENGINEERING

Publication of technical magazines, newsletters, etc.

POTENTIA' is a technical magazine published by the EEE Department since 2004, which provides a platform for both students and faculty to express their innovative ideas regarding recent trends in the field of electrical engineering. POTENTIA has certainly helped in spotting talents, promoting innovations, generating leadership roles and above all creating healthy relationships. The details are listed in Table 5.3.5.

Table 5.3.5 Details of Technical Magazines of EEE

Year	Name of Magazine / News Letter	Faculty Advisor	Student Editor
2011	POTENTIA- 6	Prof. M. Jayaraju	Jazeel K. T
2012	POTENTIA- 7	Dr. C. Usha Devi Amma	Sonu P
2013	POTENTIA -8	Prof. Deepthi M	Adhip Sreekumar
2014	POTENTIA -9	Prof. Mohammed Manzoor	Ashik Mohammed Nasar
2015	POTENTIA -10	Prof. V. Gayathri	Jobin Sukumaran

2016	POTENTIA -11	Prof.Fathima M. Kasim	Akil Nandan
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3. CHEMICAL ENGINEERING

Publication of technical magazines, newsletters, etc.

The department regularly publishes technical magazines under the umbrella of Encon Club and Institute of Chemical Engineers. The list is shown in 5.3.6

Table 5.3.6 Details of Technical Magazines of Chemical Engineering

No	Year	Title	Description
1	2013-14	TECHEEN 2013	Annual magazine of TKM-KR- Encon Club
2	2013-14	CHEMPHORIA 2013	IICHe – TKMCE – Student Chapter
3	2014-15	TECHEEN 2014	Annual magazine of TKM-KR- Encon Club
4	2014-15	CHEMPHORIA 2014	IICHe – TKMCE – Student Chapter
5	2015-16	TECHEEN 2015	Annual magazine of TKM-KR- Encon Club

4. ELECTRONICS AND COMMUNICATION ENGINEERING

Publication of technical magazines, newsletters, etc.

Table 5.3.7 Details of Technical Magazines of ECE

No	Year	Name of Magazine / News Letter	Staff Editor
1	2011-2012	Impulse-2011	Prof. Lailamoni L.P
2	2012-2013	Impulse-2012	Prof. Lailamoni L.P
3	2013-2014	Impulse-2013	Dr. S. Suresh Babu
4	2014-2015	Impulse-2014	Dr. S. Suresh Babu
5	2015-2016	Impulse-2015	Dr. K. Gopakumar
6	2015-2016	TRON	Dr. K. Gopakumar
7	2016-2017	Impulse-2016	Dr. K. Gopakumar

5.3.5. Does the college have a student council or any similar body? Give details on its selection, Constitution and Funding

Yes. Every year students elect their representatives to form the College Students Union and their respective association secretaries through the college union election. The college provides a college union fund, which is collected from the students for union activities along with the first installment of tuition fees at the beginning of each academic year and the same is credited to the college union fund. The college union has an Executive Committee consisting of:

- Chairman
- Vice-Chairman
- General Secretary
- Councillors to the Kerala University Union (Two Members)
- Editor of the College Magazine
- Arts Club Secretary
- Secretary of Sports

- One member representing the students of each year elected by the students of respective year among themselves
- Two lady representatives elected by the lady students of the college from among themselves.
- One member representing the students belonging to the SC/ST, to be nominated by the Executive Committee, in case of none of the elected members belong to SC/ST
- Honorable Treasurer and Staff Advisor(Ex-officio)

In addition, they select the representatives and office bearers of Students Welfare Committee and Student's Affairs Committee.

5.3.6 Give details of various academic and administrative bodies that have student representatives on them.

The college has various academic and administrative bodies that have student representatives in them as given below:

- (a) Internal Quality Assurance Cell (IQAC)
- (b) College Union
- (c) Course Committee
- (d) Hostel Management Committee (HMC)
- (e) Students Welfare Committee (SWC)
- (f) Students Affairs Committee (SAC)
- (g) National Service Scheme (NSS)
- (h) Career Guidance and Placement Unit (CGPU)
- (i) Students Grievance Cell
- (j) Women Cell
- (k) Library Council
- (l) Energy Management Cell
- (m) Environment Management Cell

5.3.7 How does the institution network collaborate with the Alumni and former faculty of the institution?

The institution has an active alumni association. The college convenes regular meetings of the alumni association and they actively participate in various activities of the college. The college also invites the former faculty members for various functions and maintains contact with them. TKMCE Former Teachers Club, formed by the retired teachers of TKMCE conducts meeting at regular intervals and they are in constant touch with the institution. Former teachers are invited for the Annual get-together function (held annually on January 26th), which is organized as a tribute to the retiring faculty at the end of each academic year. The families of most of the former and present teachers of TKMCE attend this grand function.

Every year, Alumni Day is celebrated on January 26th, inviting former faculties and students of the college. This is an ideal occasion for collecting feed-backs from stakeholders. Retired faculty keep in touch with the college by delivering lectures to the students on request. Alumni chapters are formed at various locations of India and abroad, such as UAE, Sultanate of Oman and Kuwait. Prof. Sudheer is functioning as faculty in charge of alumni relations. During the annual meetings of these chapters, the TKM Trust Chairman, Members of Trust and Principal are invited.

A new Alumni chapter had been inaugurated in Tanzania on November, 2015. Former students from Tanzania, delegates from TKM Trust, Principal and Foreign Students Advisor attended the inaugural function of the chapter held at Dar al-Salaam, Tanzania. They have also attended the alumni chapter meetings at Kuwait and UAE this year. The USA Chapter will be officially launched in April 2016, at Houston with regional meetings at Silicon Valley and Newark.

CRITERION VI: GOVERNANCE LEADERSHIP AND MANAGEMENT

6.1 Institutional Vision and Leadership

6.1.1. State the vision and mission of the institution and enumerate on how the mission statement defines the institution's distinctive characteristics in terms of addressing the needs of the society, the students it seeks to serve, traditions and value orientations, vision for the future, etc.?

VISION

Excellence in education and research with socio-economic and environmental outlook.

MISSION

To offer state-of-the-art undergraduate, postgraduate and doctoral programmes.

To enhance knowledge by engaging in cutting-edge research and by undertaking collaborative projects with the industry.

To instil ethical, social and environmental perspectives in designing systems for sustainable development.

To nurture creativity, self-learning and interpersonal skills.

The mission statements have been coined to address the stakeholder's expectations attached to the institution. The mission statements reflect the societal needs of prime concern like:

- High quality education in engineering and technology to the common man
- Making research a culture of the institute which in turn would address socially relevant problems
- A globally acknowledged issue environmental outlook in designing sustainable systems and solutions with a due recognition to ethical concern to the problems.
- Developing interpersonal skills, critical thinking and self learning form the fulcrum of the mission to make the graduate an engineer with holistic outlook.

6.1.2. What is the role of the top management, Principal and faculty in the design and implementation of its quality policy and plans?

- **The quality policy was designed as follows:**

A subcommittee consisting of faculty and staff formed by the Principal, made a draft policy which was presented before stake holders like alumni, industry, academicians and students. Having collected the feedback, the revised draft was discussed in the IQAC and corrections were made based on the discussions there. The final draft prepared was presented before the action committee where quality policy was approved. In this procedure, the involvement of Principal was in the first stage of discussions and the action

committee, which consists of the Members of Governing Body and headed by the Chairman had also actively involved in finalising the policy.

- The implementation of quality policy is primarily monitored by the IQAC headed by a senior Professor who has to report the progress in implementation and flaws, if any, to the Action Committee. Thus the top level management is actively involved in design and implementation of the policy.

6.1.3. What is the involvement of the leadership in ensuring:

- **The policy statements and action plans for fulfilment of the stated mission**
- **Formulation of action plans for all operations and incorporation of the same into the institutional strategic plan**
- **Interaction with stakeholders**
- **Proper support for policy and planning through need analysis, research inputs and consultations with the stakeholders**
- **Reinforcing the culture of excellence**
- **Champion organizational change**

The leadership takes special care to ensure participation of the institution in the academic, social and technical domains.

- **The policy statements and action plans for fulfilment of the stated mission:** The policy statements were drafted by a group of faculty members with a view to accomplish the stated mission. Excellence in professional education and research through social, economic and environmental perspectives are made possible through the contributions of the Internal Quality Assurance Cell and other organs of the institute. The policy statement is finally approved by the action committee which consists of the Chairman, Members of GB, Principal and HoDs who form the top management of the college.
- **Formulation of action plans for all operations and incorporation of the same into the institutional strategic plan:** The action plans framed by the various committees are approved by the top management. These are consolidated and plans for each year are implemented, ensuring that the academic activities, research and development, training etc., result in good academic and placement records.
- **Interaction with stakeholders:** Consistent contact is maintained by the institution with the external stakeholders and their inputs are sought in all ventures related to the development of the college. Citing an example, the 26th of January every year is celebrated as the Alumni Day, on which the general body meeting of the Alumni Association is held. This meeting is open to all faculty, retired and in service, and alumni. Also there, there are Alumni Chapters all over the world, the meetings of which are attended by senior faculty of the college, the Principal and the Chairman and other Trust members.

The institution has chapters of professional bodies such as IE (I), ISTE, ISTE (Students), IEEE, ENRON etc. Programmes are hosted in the college and

outside by these chapters and members are encouraged to represent the institution.

The bond between industries and the institution is ensured through the activities of the Industry Institute Interaction Cell (IIIC). The Innovation and Entrepreneurship Development Cell (IEDC) also strengthens the ties with industries.

➤ **Proper support for policy and planning through need analysis, research inputs and consultations with the stakeholders:**

The leadership organizes forums for interactions with stakeholders. These forums, especially national and international conferences and industry interactions, provide insight into the present day technological and social demands. These demands are incorporated in the PEOs, POs etc. and in designing the policies and procedures of the institution. Suggestions of stakeholders are also considered while formulating research plans.

➤ **Reinforcing the culture of excellence:** The top management is keen in ensuring that each step ahead carries a flair of excellence. Hence the following are the practices followed by the top management in this respect.

- The end semester results are reviewed, analysed and corrective measures are discussed by the action committee and GB.
- Presence of the faculty from college is ensured in the university academic bodies like the senate, Board of Studies, Academic Committees.
- Honoring faculty and staff who bring laurel to the institute.
- Ensuring academic freedom to bring forth talented people to the forefront.
- Encouraging faculty to pursue their research and inculcate research component in teaching.
- **Champion organizational change:** The leadership has always been aware of the changes in the external environment and has dynamically adjusted itself to accommodate them. Some of the new ventures like IEDC are worthy of being emulated by other institutions.

6.1.4. What are the procedures adopted by the institution to monitor and evaluate policies and plans of the institution for effective implementation and improvement from time to time?

Some of the procedures followed by the institution include:

- Respective committee meetings are held frequently to monitor and review the functioning of the institution. Corrective actions are taken, if found necessary.
- Consistent interaction with stakeholders through direct and indirect feedback mechanisms such as meetings, exit surveys, employer surveys, etc.

- Reviewing the performance of students in university examinations and reframe policies to effect improvements.
- Reviewing the performance of staff and students systematically through Eazy Campus.
- Assessing PEOs and POs from time to time and redefine policies, if necessary
- Procedures are refined to cater to changes.

6.1.5. Give details of the academic leadership provided to the faculty by the top management?

The top management provides a favourable environment to the faculty to enhance their academic capabilities. The following are the highlights:

- Academic freedom and leadership in academic bodies like DMC, DQAC, IQAC, Hostel Council etc.
- HoDs are appointed for two years in rotation basis so as to ensure that the leadership positions are evenly distributed among senior faculty members.
- Leadership positions in various bodies are also in rotation basis to ensure that all faculty members receive them and contribute with their unique abilities.
- Faculty are encouraged to have maximum interaction with the outside world so as to enrich them with newer experience and expertise.
- Financial support for attending national and international conferences

6.1.6. How does the college groom leadership at various levels?

The institution grooms leadership at the following levels:

Principal and Heads of Departments: All the major academic and administrative decisions are taken by the Principal in consultation with the Heads of Departments and the faculty/staff concerned.

Faculty Level: New faculty members are given induction training to prepare them for shouldering the responsibilities associated with the profession. Seniority is one of the factors considered, along with their competence and commitment, while choosing people for shouldering responsibilities. While forming advisory boards, handling examination duties and assigning administrative charges of laboratories, junior faculty work under the guidance of the senior faculty. Rotation of charge is followed for all the main posts such as the Head of the Department, lab-in-charges, convenors of various committees, etc. All committees, chapters and cells have representation of faculty, who play a major role in formulating policies and procedures. All student forums have staff advisors. Faculty oversee the conduct of all events - technical, cultural and sports to ensure smooth conduct of the same. Training is provided to faculty through Academic Leadership Programmes conducted at premier institutions like IIMs.

Student Level: Class representatives are selected from among students each year, keeping in mind gender equality. Students also gain representation through college union elections for different posts of the college and in representing the college at the university level, with fair representation of both genders. Students critically evaluate the classes in Class Committee Meetings and put forward suggestions for improvement. As a part of formal training, students are given personality development classes through the CGPU.

6.1.7. How does the college delegate authority and provide operational autonomy to the departments/units of the institution and work towards decentralized governance system?

The following points may be noted with regard to the operational autonomy of individual departments:

- The Department is headed by the HoD, who is assisted by the Academic Coordinator in curricular matters.
- The Department Management Committee (DMC) is an active body in the department to decide on important academic and disciplinary matters.
- The Department prepares the budget and submits for the approval from Central Planning Committee.
- The departments are given a corpus fund for their emergency expense and the HOD has the power to decide the expenditure.
- Each laboratory is managed by two faculties who function as the lab-in-charge and assistant-lab-in-charge. Technical staff is also allotted to each lab.
- Each batch of students has a Senior Advisor and four/ five junior advisors, to look into their curricular and personal matters. The Senior Advisor, through Class Committee Meetings, also ensures that the classes are conducted well.
- Feedback from staff and students are collected through various forums to decide electives to be offered, to improve the quality of the classes, industrial interactions etc. and corrective actions are taken, if needed.
- Co-curricular and extra-curricular activities function through clubs/ committees/ cells/ chapters and enjoy autonomy in their operations.

6.1.8. Does the college promote a culture of participative management? If 'yes,' indicate the levels of participative management.

Yes.

- Participative management appears at various levels within the institution. The Heads of Departments are consulted before taking major administrative and academic decisions.
- Suggestions and opinions from faculty are being sought before taking policy decisions.
- The Department Management Committee, Department Academic Committee, and various cells are managed by the faculty.
- The Students Affairs Committee has are presentation of the faculty, staff and students.
- The students play a key role in the academic activities through Class and Course Committee Meetings and participate in the Students Affairs Committee.
- The College Union is an elected body of students to conduct various programs like techno cultural festivals, raise student issues, etc.
- The College Planning Committee functions with the objective of formulating college level yearly budget plan and ensuring proper implementation of academic plans.

6.2. Strategy Development and Deployment

6.2.1. Does the institution have a formally stated quality policy? How is it developed, driven, deployed and reviewed?

Yes. The institution has a formally stated quality policy which has been formulated based on the vision and mission of the college.

- The quality goals of the graduates of the departments are formulated by the Programme Coordinators based on the views of their stakeholders. These goals are discussed in the DQAC and a policy draft is framed individually. The outcomes are then consolidated by the IQAC to develop a total quality policy for the college. The draft policy is discussed in the Action Committee and then finalized.
- The activities of the various departments are driven with an emphasis on the established quality policy. The Quality Assurance Cell of the respective departments takes a lead role in the deployment of this policy.
- Reports of activities are submitted for review to the IQAC, after the completion of every programme. The compliance of each such event to the policy standards is evaluated by the committee and observations are recorded. These views are helpful in planning future programmes.

6.2.2. Does the Institute have a perspective plan for development? If so, give aspects considered for inclusion in the plan?

Yes. The institute has got a vibrant development plan in tune with its vision. The following are the major components in the development plan.

- New PG. programmes in key areas of technology
- Research Labs
- Multi-Disciplinary Research
- Transform the library into a Content Development Centre
- Enhance Funded Research and Consultancy
- Interaction with industry and MoUs
- Modernization of Laboratories
- Making Centres of Excellence in two departments
- Equity Based Development
- Increase in number of doctoral degree holders as faculty
- Faculty Development Programmes and workshops to enhance technical knowledge and expertise.
- Adaptation of ICT enabled systems to improve performance
- Groom students for entrepreneurship.

6.2.3. Describe the internal organizational structure and decision-making process.

- TKMCE is the first Government-Aided Engineering College in Kerala. The college is owned by TKM College Trust.
- The administration of the college is vested in a governing body consisting of representatives of the TKM Trust, Government of Kerala, All India Council for Technical Education, headed by the Chairman of the TKM Trust and the Principal as the Ex-officio secretary.

- Organizational structure is shown in the Fig. 6.2.1 below. Overall governance, budgetary decisions, appointments etc. are carried out by the Governing Body. Overall organizational structure including all academic committees is shown in Fig. 6.2.2. Student related matters are finalized by the appropriate committee and approved by the appellate bodies as given in the Fig.6.2.2.

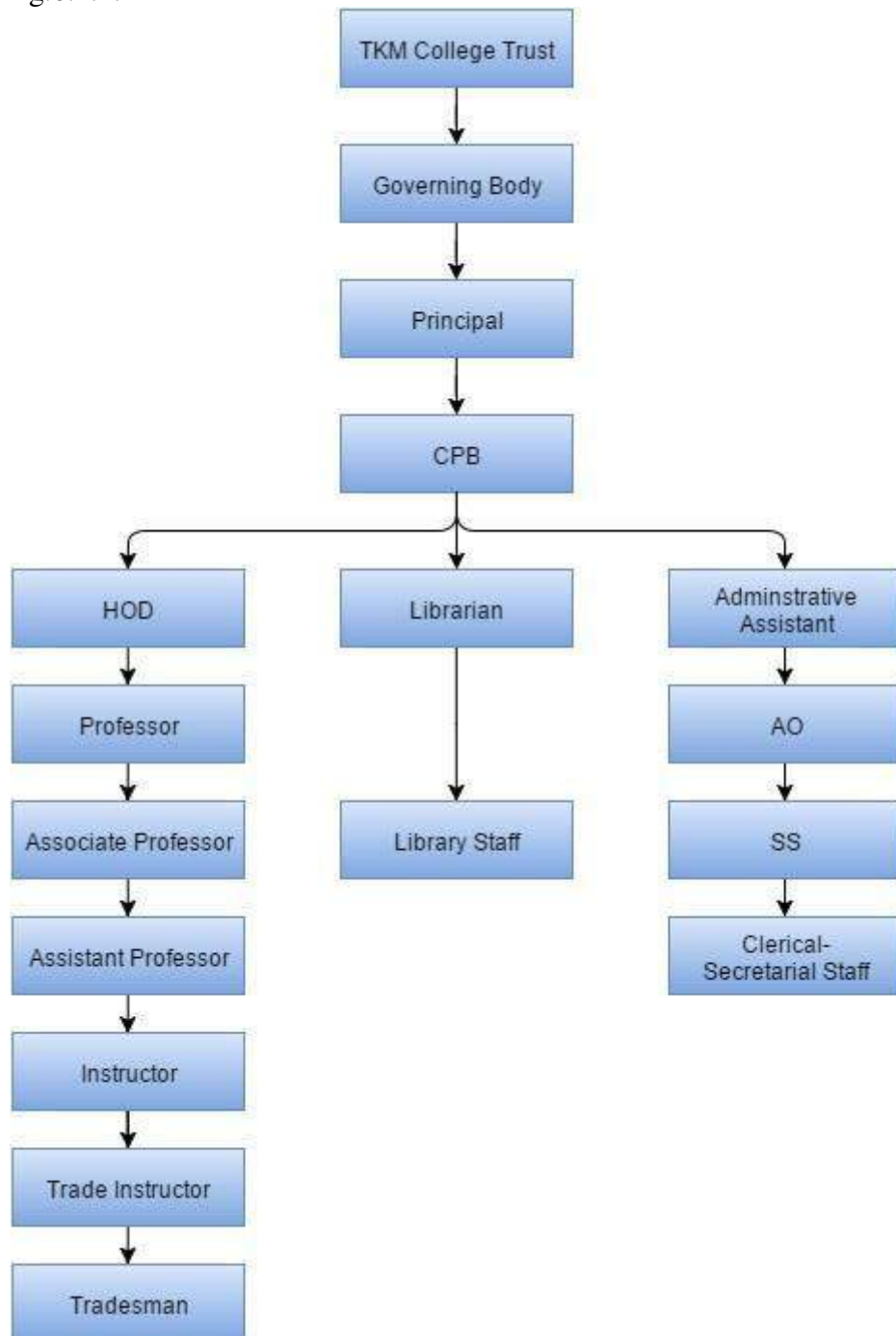


Fig. 6.2.1 Organizational Structure

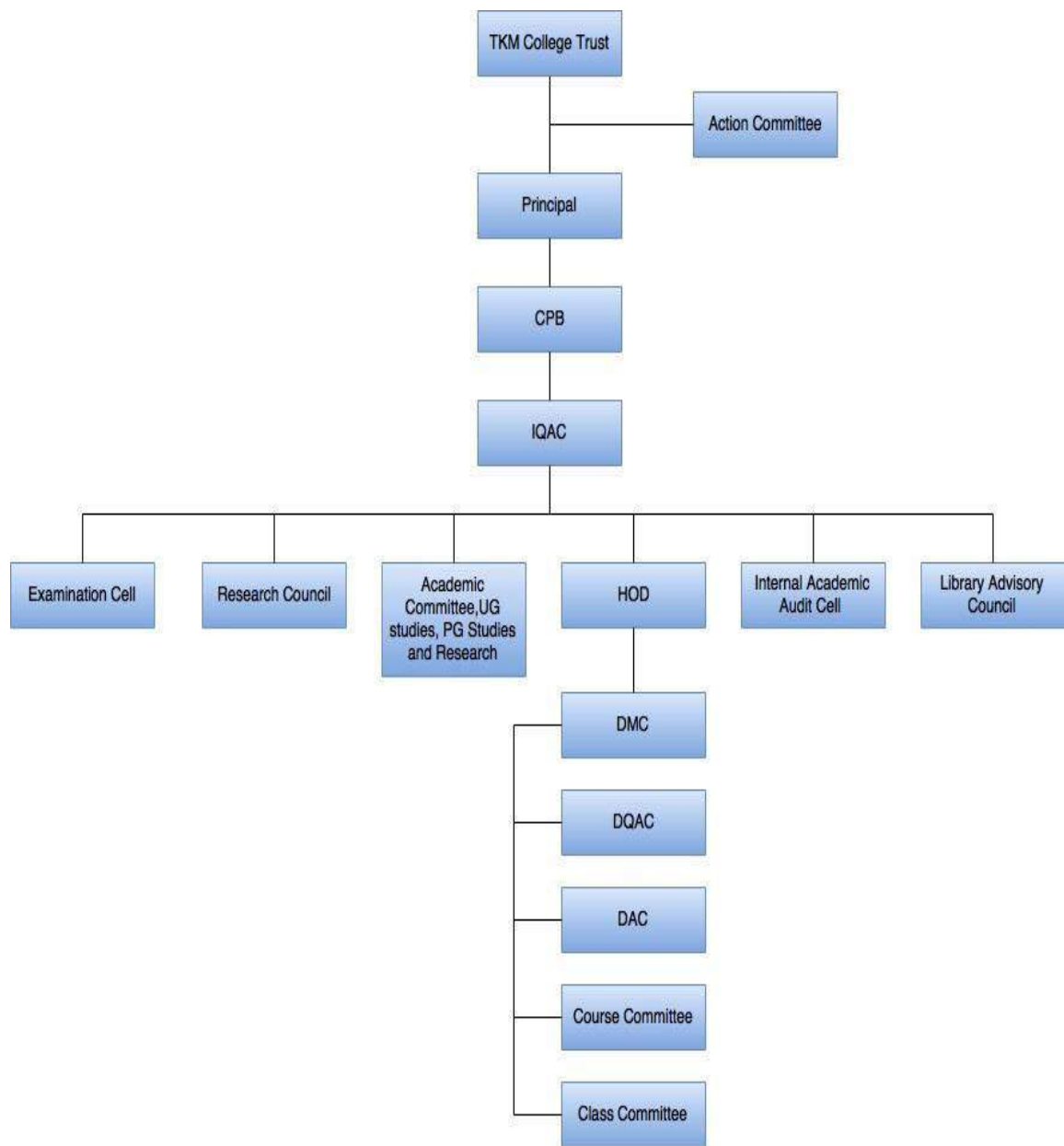


Fig. 6.2.2 Academic Committees

There is a hierarchical organization for decision making process existing in the college since several years. For every decision concerned with students, recommendations are accepted from the Advisors, based on which the HoD/Principal will arrive at a final decision. In general policy matters, decisions are taken by the Principal/Action Committee based on recommendations by the respective HoDs.

6.2.4. Give a broad description of the quality improvement strategies of the institution for each of the following:

The institute is committed to impart quality education. This is accomplished through the following strategies:

Teaching and Learning:

- Faculty are encouraged to apply for projects in collaboration with industries as well as to participate in national and international conferences.
- Adopt projects such as TEQIP which facilitates all these procedures.
- The course committee evaluation of teaching- learning process.
- Evaluation of teachers by peer group as well as by students.
- Remedial classes for students.
- Feedback from stakeholders.
- Students' participation in conferences, workshops, technical fests organized by other institutes and professional societies.
- Study tours or industry visits for learning beyond the curriculum.
- Professional society activities
- Encouraging e-learning facility through NPTEL lectures, QEEE classes etc.
- Initiating ventures like FABLab and IEDC etc.

Research and Development:

- Promoting research by faculty under QIP at premier institutes.
- Part-time research at University of Kerala.
- MoU with industries and research organizations.
- Infrastructure developments from various funds (Management, MODROBS, RPS, DST/ISRO Projects).
- Projects like TEQIP for promoting publication in national /international journals.
- Well-equipped library with e-learning facility.

Community Engagement:

- National Service Scheme (NSS) activities like blood donation camps, antidrug campaign, personality development programmes and Red Ribbon Day.
- Professional organizations like IEEE support in developing community projects for the benefit of the isolated settlements.
- Energy management cell involvement in energy conservation awareness among the public in association with Local Self Government Departments.
- Stem cell donation camps in association with STEPS.

Human Resource Management:

- Recruitment of faculty and staff by an interview board consisting of members representing the Kerala government, university, External Subject Expert chosen by the Directorate of Technical Education, Management etc., as per the guidelines of AICTE.
- Career advancement policies framed by the Government of Kerala.
- Pay revisions as per the norms laid down by AICTE and Government of Kerala.

Industry Interaction:

- Expert lectures by industry personnel.
- Projects of students guided by industry experts.
- Industry related issues solved as projects by students and faculty.
- Students' internship in industries.
- Testing centre/ Research centre funded by industries.
- Continuous industry linkage by CGPU for career guidance activities.

6.2.5. How does the Head of the institution ensure that adequate information (from feedback and personal contacts etc.) is available for the top management and the stakeholders, to review the activities of the institution?

- The Head of the institution collects information from the faculty and staff through various review mechanisms, formal and informal interactions.
- The Head of the institution collects feedback from the Heads of the Departments, UG/ PG Dean, faculty, students, parents and alumni regarding academic environment, extracurricular activities and infrastructure demands.
- The Head of Institution and the management are always in interactive mode with each other.
- At the beginning of each semester the top management members address the faculty on general policy matters.
- Information collected is reviewed and presented to the management in the weekly meetings between Head of the institution and the management through a weekly report.

6.2.6. How does the management encourage and support involvement of the staff in improving the effectiveness and efficiency of the institutional processes?

- The faculty are given representations in top level bodies like action committee and Governing Body to get a direct report from faculty on the institutional process.
- Decision making committees are represented by faculty and staff.
- Administrative and academic decisions are formulated by the respective committees entrusted for that purpose. This committee is constituted of members from faculty/ staff/students.

- The consolidated feedbacks are reported to the management to improve the efficiency and effectiveness of the process.
- Top management honours best performing HoDs, Senior Advisors etc.

6.2.7. Enumerate the resolutions made by the Management Council in the last year and the status of implementation of such resolutions

No	Resolutions	Status
1	The Principal shall submit a weekly report on the academic and other activities of the college and the report will be discussed by the Management with the Principal and would suggest improvements if any.	Implemented
2	The Departments of Computer Science and Engineering and Electronics and Communication Engineering shall become recognized Research Centres	Proposals are pending with the University of Kerala
3	Initiate steps to enhance the sanctioned intake of students in MCA	Implemented
4	Each semester results shall be assessed with a view to attain higher percentage of results and to discuss with the Principal, Heads of Departments and faculty concerned	Implemented
5	All vacant posts of teaching, technical and other non-teaching staff shall be filled up	Implemented

6.2.8. Does the affiliating university make a provision for according the status of autonomy to an affiliated institution? If 'yes,' what are the efforts made by the institution in obtaining autonomy?

Yes. The proposal is pending with the Government. The institute has gone for NBA and NAAC accreditations and achieved both which is a part of its journey towards academic autonomy.

6.2.9. How does the institution ensure that grievances/complaints are promptly attended to and resolved effectively? Is there a mechanism to analyze the nature of grievances for promoting better stakeholder relationship?

The college aims at holistic development of the students' personalities. This is ensured by providing platforms for promoting better stakeholder relationship.

- Any grievance or inadequacy felt in this aspect can be immediately raised before any of the following redressal forums: Grievance Redressal Cell, Student Affairs Committee, Women's Grievance Cell, Anti Ragging Cell and Department Advisory Committees.
- As per the Gazette notification of Government of India, an Internal Complaints Committee has been setup in the institution to deal with the prevention, prohibition and redressal of sexual harassment of women at the workplace.
- An enquiry committee appointed by the Principal investigates serious issues brought up in any of the aforesaid platforms. Requisite action, as outlined by the enquiry committee, is expediently taken.
- Suggestion boxes are made available in the campus.

- Complaints and grievances are also raised by the students in Hostel Committee meetings.
- Faculty grievances are addressed in HoD meetings, Internal Complaints Committee, Action Committee and Women's Grievance Cell etc.
- Parents can express their views and concerns to the Principal, Student Affairs Committee, Women's Grievance Cell, Anti-ragging Cell, Hostel Management Committee, Head of the Department and Advisors.

6.2.10. During the last four years, had there been any instances of court cases filed by and against the institute? Provide details on the issues and decisions of the courts on these?

1. Prof. N. Ramaswamy, Department of Architecture filed a writ petition before the Honourable High Court against the punishment imposed on him which is still pending before the court.
2. Prof. K. Chanda Pilla Panicker, Department of Electrical and Electronics Engineering filed an appeal petition before the University Appellate Tribunal against the punishment imposed on him and is still pending.

6.2.11 Does the Institution have a mechanism for analyzing student feedback on institutional performance? If 'yes,' what was the outcome and response of the institution to such an effort?

Yes. There is a well-designed mechanism in place for analyzing the institution's performance

- The Student Feedback, Graduate Exit survey and Course Exit Survey are conducted on a yearly basis separately for each program.
- The Principal/IQAC/Dean collect direct feedback from the students semester wise and the information is conveyed to the respective department and faculty.
- They generally turn up positive reviews of the college, and also are part of a monitoring mechanism that seeks to maintain the high standards of academic excellence by rectifying oversights that may become evident in feedback surveys.
- Response by students about Wi-Fi limitation in the hostels and limited library hours were attended to positively by the college authorities.

6.3 Faculty Empowerment Strategies

6.3.1 What are the efforts made by the institution to enhance the professional development to fit teaching and non-teaching staff?

Teaching staff

- The institution motivates the teaching staff to acquire higher qualification. The teaching staff can pursue higher qualifications under the QIP with the faculty availing full salary during the QIP period. Faculty doing part-time research can avail six months leave with full salary for completing research work.
- Professional bodies play a pivotal role in development for faculty, students and staff. They are encouraged to take memberships in professional bodies like IEEE, IETE etc., and financial support is extended for this purpose.

- The institution is an approved research centre of the University of Kerala for Civil and Mechanical Engineering and the faculty can pursue part-time research in the institution.
- The faculty are encouraged to take up research projects to enhance their professional competence.
- Faculty Development Programmes (FDP) and workshops with eminent academicians and industrialists delivering lectures are frequently organized to enhance the professional capabilities of the faculty.
- Faculty are sponsored to participate in FDP and Management Development Programmes at IITs, IIMs and other prestigious institutions.
- Sponsorship is provided to the faculty for presenting papers at national and international conferences.

Non-teaching staff

- Workshops are held for non-teaching staff to improve their technical skills and communication skills.
- The non-teaching staffs are sponsored to attend training programmes at various institutions.
- Demonstration training programmes are arranged for non-teaching staff when new equipment/software is purchased.

6.3.2. What are the strategies adopted by the institution for faculty empowerment through training, retraining and motivating the employees for the roles and responsibility they perform?

The newly recruited faculty undergo induction training which prepares them to take up their new roles and responsibilities. All faculty have to regularly improve their professional competence by attending faculty development programmes. The senior faculty are encouraged to attend management development programmes at premier institutions like IIMs. The faculty head many academic and co-curricular committees and are given freedom to coordinate activities. The faculty displaying exemplary performance in various fields are recognized in college functions.

6.3.3. Provide details on the performance appraisal system of the staff to evaluate and ensure that information on multiple activities is appropriately captured and considered for better appraisal.

- Faculty have to submit self-appraisal report every year which is verified and forwarded by the HoDs to the Principal. The Principal, with appropriate remarks then forwards the self-appraisal report to the Management.
- Faculty are promoted based on their experience and appropriate number of credits as per the requirements of the higher post. The credits capture all facets of performance of the faculty.
- Evaluations of teachers by the students are conducted online twice every semester, once in middle of the semester and then at the end of the semester,

and a staff evaluation index is computed. This evaluation provides feedback to the faculty on their teaching methods and enables them to adopt appropriate corrective actions, if necessary. In addition, the HOD and the academic coordinator visit individual classes and collect information on the effectiveness of the faculty. The information thus collected is then shared with the individual faculty which helps him/her in identifying his/her shortcomings and in adopting corrective measures.

6.3.4. What is the outcome of the review of the performance appraisal reports by the management and the major decisions taken? How are they communicated to the appropriate stakeholders?

Performance appraisal report of faculty is critical for upward promotion. The Government/University has laid down regulations to this effect. Requests for promotions/placements are forwarded to the Government / University by the management once the performance appraisal is satisfactory. In case if any corrective measures are required, they are conveyed to the concerned faculty through the Principal and HoD. Decisions made are also communicated to the faculty once it comes as orders from the DTE.

6.3.5. What are the welfare schemes available for teaching and non-teaching staff? What percentage of staff have availed the benefit of such schemes in the last four years?

The following are the major welfare schemes apart from salary and service norms as per AICTE scheme.

- The staff is eligible for all benefits and leave under the Kerala Service Rules such as
- Provident Fund, gratuity
- State Life Insurance
- Group Insurance
- Medical reimbursement
- Pension and family pension
- Commuted leave, maternity leave
- Travel Concession (LTC) once during their service period.

The other facilities available are

- Transportation facility is provided for the faculty and the students.
- Canteen facilities
- A convenience store
- Service of a doctor and nurse are available from 9AM to 5PM

6.3.6. What are the measures taken by the institution for attracting and retaining eminent faculty?

Faculty can only be appointed at the entry level as Assistant Professors in the institution. TKM College of Engineering being a premier engineering institution in Kerala attracts the most eminent faculty from various parts of Kerala. A very harmonious atmosphere is maintained in the college which is conducive for the all-round development of the faculty and provides them job satisfaction. Faculty intending to pursue higher education are granted leave with full salary. All

facilities are provided to the faculty who desire to pursue research in emerging areas of science and engineering. The faculty, thus, are motivated to bring out their best performance. This is reflected in the extremely low rate of attrition.

6.4 Financial Management and Resource mobilization

6.4.1. What is the institutional mechanism to monitor effective and efficient use of available financial resources?

The major sources of fund are research fund, consultancy fund, management fund, salary received from government, fee collected from students and funds from agencies such as AICTE, CERD, POI, GOI etc.

The institution has an effective system to monitor the effective and efficient use of available financial resources. There is an efficient Central Planning Committee and a department level committee operating in the institution which helps in proper allocation and optimum usage of available funds. The department level committee prepares requirements for each programme and labs. The CPC consolidates the department requirements and prepares the institution budget. The budgets are discussed by the Principal and then sent to the Governing Body for final approval.

While preparing the institutional budget, at first, a provision is made for administrative and maintenance expenses such as electricity, water, telephone, postage etc. In addition, while making provisions for the departments, the priorities, needs and requirements of the various committees and development/up-gradation of departments are taken into account. Based on these a detailed budget allocation is made for each department under various heads. After the approval from the Governing Body, the purchase committee invites quotations from various agencies, places the purchase order and allots the resources to the departments of the institution. There is an internal audit and external audit to verify the optimum utilization of the available financial resources. There are budgetary provisions for all administrative and academic activities.

Budgetary provisions are utilized for:

- (i) Introduction of new and relevant technology.
- (ii) Improving the basic facilities provided to students and teachers.
- (iii) Infrastructure maintenance and development.
- (iv) Augmentation of library and lab facilities.
- (v) Social activities and society welfare.
- (vi) Research activities.

Moreover the budgetary provisions are utilized for the overall quality development of the institution.

6.4.2. What are the institutional mechanisms for internal and external audit? When was the last audit done and what are the major audit objections? Provide details on compliance.

The institution has three types of audits:

1. Internal audit by a Chartered Accountant firm.
2. Audit by the Directorate of Technical Education, Government of Kerala, Thiruvananthapuram.

3. Audit by the Office of the Accountant General, Government of India, Thiruvananthapuram.

The above three audits are done yearly by the concerned. The internal audit has been done up to the financial year 2015-16. The government audit has been done up to the financial year 2015-16. No major irregularities have been raised by the authorities. Arrangements are being made to rectify the minor irregularities, if any. The audited statements are published in the website. In addition to this, the institution is having consultants to give opinion on taxation and legal issues.

6.4.3. What are the major sources of institutional receipts/funding and how is the deficit managed? Provide audited income and expenditure statements of academic and administrative activities of the previous four years and reserve fund/corpus fund available with the institution.

The project grants from various agencies such as AICTE, CERD, KGCSTE, QEEE etc, tuition fee, funds of PTA, alumni association, research fund and grants from central government and state government are the major sources of institutional income. The management provides the necessary funds to meet the deficit, if any. The management funds for capital expenditure like building and purchase of equipment etc. The fees collected from students are remitted to the government. The detailed audited statement is available in the website. The audited income and expenditure statement of academic and administrative activities of the previous four years are given in AnnexureG.

Being a TEQIP institution, the institution is having a corpus fund with the Government Treasury.

6.4.4. Give details on the efforts made by the institution in securing additional funding and the utilization of the same.

The following efforts have been made by the institution in securing additional funding

- (1) Consultancy work and projects sponsored by organizations like DST, AICTE (schemes MODROB, TEQIP) etc.
- (2) Testing all types of materials and equipment.

The revenue generated from consultancy is utilized for upgrading the laboratories and conducting faculty development/student development programs. The funding received from the respective organizations is utilized for the purpose for which it is received.

The institution is government-aided and additional funds from the following sources are also available.

- (1) Agencies such as ISTE/CERD/KSCSTE/QEEE and Harijan Welfare Book Bank.
- (2) Grants for SC/ST hostel.
- (3) Various scholarships.

The above mentioned funds are used to enhance and upgrade existing facilities, organize short term courses and enhance the technical expertise of the faculties. The scholarship amounts are distributed to the students according to their merit.

6.5. Internal Quality Assurance System (IQAS)

6.5.1 Internal Quality Assurance Cell (IQAC)

(a) Has the institution established an Internal Quality Assurance cell (IQAC)? If 'yes,' what is the institutional policy with regard to quality assurance and how has it contributed in institutionalizing the quality assurance processes?

Yes. The institution has an internal quality assurance cell. The Quality Assurance Cell in our institution was re-constituted as IQAC on 13/10/2015. The following members monitor the implementation of the quality policy:

- College trust member
- Principal
- Coordinator (IQAC)
- Two external members
- Student representative
- Two members from administrative side.

The policy of the IQAC is to develop a system for conscious, consistent and catalytic improvement in the performance of our institution.

The IQAC works to attain the objectives by:

- Closely monitoring the various academic and administrative activities of the institution.
- Facilitating the creation of a learner-centric environment conducive for quality education and faculty maturation, to adopt the required knowledge and technology for participating in teaching and learning processes.
- Making arrangements for faculty evaluation from students, parents and other stakeholders on quality related institutional processes.
- Organizing workshops, seminars on quality related themes and promotion of quality circles and its documentation.

(b) How many decisions of the IQAC have been approved by the management /authorities for implementation and how many of them were actually implemented?

The following decisions of the IQAC are forwarded for the approval of management:

- Two departments of the college, namely, civil and mechanical engineering are research centres. Efforts should be taken to upgrade the remaining PG departments to research centres.
- There are five PG departments in the institution. Efforts should be taken to upgrade the remaining UG departments to PG departments.
- Steps should be taken to provide smart class facilities in all classrooms.

- Steps should be taken to introduce more research journals and e-journals in the college library.
- Encourage teachers with Ph.D. to take up major and minor research projects of AICTE, UGC or other national funding agencies.

The college management has approved all the proposals of the IQAC and the following decisions were implemented:

- (1) A number of research projects have been sent for AICTE and UGC approval.
- (2) All the classrooms have been converted into smart classrooms.

(c) Does the IQAC have external members on its committee? If so, mention any significant contribution made by them.

Yes. Er.P.Anilkumar, CTO, TKM InfoTech Pvt. Ltd and Er.P.K. Sivaprasad, General Manager and Head, Quest Global Engineering, Thiruvananthapuram are the external members of IQAC. They give constructive suggestions for improving the working of the IQAC.

(d) How do students and alumni contribute to the effective functioning of the IQAC?

There are student representatives and alumni representatives in the committees of the IQAC to ensure its effective functioning. The College Union Chairman is a student representative of the IQAC. He supports the activities of the IQAC and contributes to its effective functioning. The external members are alumni of the institution. They regularly interact with members of IQAC and attend the committee meetings. They give creative suggestions for the successful functioning of IQAC.

(e) How does the IQAC communicate and engage staff from different constituents of the institution?

The Central IQAC formulates the guidelines for the quality improvement policies and communicates with DQAC. The DQAC discusses it in the course committee meetings and communicates with the central IQAC. The central IQAC includes teaching faculty representing major departments. The office administrative assistant and administrative officer are also members of the IQAC.

6.5.2. Does the institution have an integrated frame work for quality assurance of the academic and administrative activities? If ‘yes,’ give details on its operationalisation.

Yes. In the institution, the IQAC functions as a formal framework for quality assurance of the academic and administrative activities. The faculty in each department prepares a course file for all semesters which includes study material, lesson plan, course objective mapping, program objective mapping and result analysis. The DQAC coordinator and academic audit committee verifies the course files and takes necessary steps to improve the academic activities. The IQAC accepts decisions from the Academic Audit Committee and collects students’

feedback. According to this, the IQAC gives suggestions to improve the teaching and learning process and reports to the college administration. The IQAC plays a vital role in monitoring the infrastructural facilities and its timely up gradation to enhance learning environment and reports to the college administration.

The IQAC takes appropriate decisions on various activities and constantly monitors the implementation of these decisions. The Principal and the management representative monitor the activities of the IQAC. The IQAC in administrative wing monitors the quality assurance of the administrative activities.

6.5.3. Does the institution provide training to its staff for effective implementation of the quality assurance procedures? If 'yes' give details enumerating its impact.

Yes. The institution provides faculty development programmes for effective implementation of the quality assurance procedures. The outcomes of such training programmes are:

- Upgrading the skills and knowledge of the faculty.
- Improving the teaching and paper presentation skills.
- Awareness of the technical advancements in various disciplines.
- Enhance research activities/consultancy work.

6.5.4. Does the institution undertake Academic Audit or other external review of the academic provisions? If 'yes', how are the outcomes used to improve the institutional activities?

Yes. The institution conducts internal academic audit and external academic audit. The department level academic coordinator monitors the activities such as ensuring the completion of the syllabus, quality of the question papers/projects/seminars, effective participation and effectiveness of QEEE classes, details of tutorial/remedial classes conducted, evaluation of assignments/tests and maintain the data of all academic activities. The internal audit team visits each department and verifies the details. The outcomes of the audit are discussed with the HoD and necessary actions are taken to improve the academic activities. KTU conducts the external audit. The institution gathers external review of the academic decisions from PTA meetings and course committee meetings.

Outcome:

- In case of discrepancies, suggestions are given to the respective faculty for compliance.
- If the rate of completing syllabus per month is very poor, then, extra lecture hours are provided by the respective faculty.
- Instruct the faculty to conduct remedial classes for academically weak students.

6.5.5. How are the internal quality assurance mechanisms aligned with the requirements of the relevant external quality assurance agencies/regulatory authorities?

The institution has quality assurance mechanism in the form of IQAC. The IQAC tries its best to align with the requirements of NAAC, NBA, UGC, AICTE, University of Kerala, State Government and Human Resource Ministry of Union Government.

Kerala Technological University (KTU) is also extending a quality assurance mechanism to the college by academic audit and other inspection procedures.

6.5.6. What institutional mechanisms are in place to continuously review the teaching learning process? Give details of its structure, methodologies of operations and outcome?

The following mechanisms are used to continuously review the teaching learning process.

- IQAC, Internal Quality Assurance Cell
- IAAC, Internal Academic Audit Cell,
- DQAC, Department Quality Assurance Cell
- DMC, Department Management Committee
- DAC, Department Academic Committee
- Course Committee
- Class Committee
- Subject Group Committee
- Mid Semester and End Semester Teacher Evaluation.
- Advisory Meetings.
- Course Exit Survey.

Structure:

- The HoD allots the subjects to the faculty as per their choice and specialization.
- The faculty is requested to submit the lesson plan and lecture notes before the commencement of the semester which will be verified by the DQAC.
- The Principal, IQAC and HoDs monitor the academic activities of the institution.
- Subject group committees identify the curriculum gap and finalize the lesson plans.
- The DAC conducts academic preparation and monitoring.
- The Class Committee and Course Committee reviews the academic activities regularly and takes corrective steps.
- Teacher evaluation done by the students is used to assess the performance of the faculty.

- Senior faculty members are asked to review the teaching of junior faculty members. They give necessary suggestions for improving the teaching methods.

Methodologies of operation:

Continuous Internal Assessment tests, assignments, seminars, parent teacher meeting, course committee meeting, students evaluation report and course exit survey are the measures to review the teaching learning process. Feedback is constantly received from students, parents and other stakeholders.

Outcome:

- The quality of academic processes in the institution has improved.
- Individual faculty gets inputs to improve his/her performance and hence contribute to the teaching learning quality.
- Individual attention to students through mentoring contributes to improvement in student's performance.

6.5.7. How does the institution communicate its quality assurance policies, mechanisms and outcomes to the various internal and external stakeholders?

For internal stake holders:

Instructions are given periodically to teachers and students through the Principal's meetings, HOD meetings, group SMS, circulars, Eazy Campus and website. The communication is also made through the alumni newsletter, department newsletter etc. The Chairman of the TKM Trust addresses both the students and teachers regularly.

For external stake holders:

The communication is made through the college hand book, PTA meeting, Alumni meeting, advertisement and programme brochures.

CRITERION VII: INNOVATIONS AND BEST PRACTICES

7.1 ENVIRONMENT CONSCIOUSNESS

7.1.1 Does the Institute conduct a Green Audit of its campus and facilities?

An Environmental Management Committee has been constituted to address various aspects related to environmental policy in and around the campus. The Committee consists of eight members with a senior professor as Chairman, the NSS Program Officer and a student representative. The environmental policy of the institute is targeted to optimize the usage of resources and of conventional energy and to promote the usage of renewable energy. It intends to safeguard the health and safety of the users by scientific management of waste in the campus. The Environment Management Committee is in the process of organizing various activities to meet the above objectives and for conducting green audit in the campus.

7.1.2 What are the initiatives taken by the college to make the campus eco-friendly?

Various initiatives have been organized to promote sustainability with the help of NSS and other student organizations. As an initiative to make the campus eco-friendly, the following programs have been organized:

- *Vanamaholsavam* (Tree plantation)
- Celebration of World Environment Day.
- Clean up Projects (within and beyond the campus)
- Save energy campaign.

- Various programs, including tree planting initiatives are organized in and around the college campus with the aid of National Service Scheme (NSS) and “*Bhomitra Sena*”.
- Paper waste management initiative helps to reduce the manpower, cost and time thereby benefiting the administrators, teachers and the students to maximize their efficiency.
- A web interface named Eazy Campus is used for academic data management. Eazy Campus is a highly secured and scalable web based campus management system, which works on both Intranet and Internet. The system is protected, accessed through individual login Admin/Parents/Students/Teachers. The system works as a one point portal for academic information to students, teachers and parents. The digital data storage system in Eazy Campus reduces paper usage.
- The institute has introduced SMS gateway, which is eco-friendly, bulk SMS solutions to disseminate information, which also reduces paper usage and wastage.

- Introduction of Biometric Time Clock System is another eco-friendly initiative of the institution. The biometric clock system is a sustainable office solution that eliminates the need for hard copies of attendance.
- All the above activities reduce paper usage in the academic and administrative functioning of the college and help to trim down the carbon footprint of the institution.

Energy conservation

The institution instills a spirit of energy saving in all stakeholders, particularly among the students and staff members. Energy is an important entity of the campus. Our campus adopts an energy policy to promote proper management and conservation of energy as well as the use of renewable energy. An Energy Management Cell consisting of seven members including student representative, has been constituted in the institute with a senior Professor as chairman. The energy policy of the institute is to create awareness regarding energy conservation and management and to develop an integrated energy efficient system without environmental degradation, using renewable resources.

Energy conservation and awareness regarding energy management is implemented through active participation of users in the campus. The infrastructure developments are guided to incorporate passive measures, eventually leading to net zero energy usage. Renewable sources introduced along with conventional sources of energy, reduces not only the grid dependency but also the energy cost incurred by the college, leading to sustainable management of resources. Temperature guidelines are implemented to optimize the energy loads of air conditioners in the laboratories and seminar halls.

Energy Management Cell formulates and upgrades the energy policies, reviewed from energy audits conducted in every two years. Energy intensive equipments are replaced based on such audits.

Use of renewable energy

Biogas plants are used for cooking in all five hostels (7m³ capacity each).

Water harvesting

Water harvesting is being taken up in a big way to improve the drainage system and groundwater. There are rain water recharge pits in the campus. The locations of these pits are as follows:

- 8 pits of 10m³ located in front of the main building.
- 2 pits of 10m³ in front of Mechanical Engineering block.
- 2 pits of 10m³ in front of Chemical Engineering block.
- 1 pit of 10m³ by the side of auditorium near the tennis court..
- 1 pit of 10m³ near workshop building
- 2 pits of 27m³ near the new auditorium.
- 1 pit of 15m³ near the canteen.

Water treatment plant

Water treatment plants using pressure filtration are provided in all hostels. Disinfection of water is carried out using chlorine. Drinking water is supplied from UV treated water filters/coolers in all floors in all buildings and various locations in the campus.

Sewage treatment

A sewage treatment plant has been proposed to be built in the hostel. At present, septic tanks are used in each hostel for sewage disposal within the site.

Check dam construction

Rainwater recharge pits serve the purpose of check dams to an extent. The campus site is relatively flat. Rain water percolation is attained by providing sufficient amount of rain water percolation pits at different locations within the campus.

Recharging of wells

Artificial recharging of dug wells in the campus is done using rain water collected from the roof top of buildings.

Efforts for carbon neutrality

The institution is looking to a sustainable future by working to become carbon neutral. Various measures are adopted to reduce emissions of greenhouse gases, reduce use of energy, use more renewable energy, and emphasize the importance of sustainable energy sources. Planting more trees to make an eco-friendly campus and by optimizing the use of refrigerators, air conditioners and other carbon emitting equipment. An incinerator of 18m height located at a distance of 200m from the academic zone is used for burning non-chemical waste.

Hazardous waste management

Institution is constantly expanding its waste management program and has introduced holistic solutions to reduce waste production and encourage reuse, recycling and composting on campus.

Staff and students have also helped create innovative programs to educate the community about the importance of waste management. Following programs under NSS are examples for such an effort.

- Clean Up Projects (within and beyond the campus)
- Save energy campaign.

e-waste management

A separate storage space has been allotted to store e-waste before clearing them from the campus.

7.2 INNOVATIONS

7.2.1 Give details of innovations introduced during the last four years which have created a positive impact on the functioning of the college.

The college is keen on promoting innovative practices to create competence in education and research at various academic levels. The institution also recognizes the importance of innovations in functioning of facilities like administration and extracurricular activities of students.

Teaching learning process

The quality of teaching learning process is monitored by the IQAC (Internal Quality Assurance Cell) in the college level and by the DQAC (Department Quality Assurance Cell) at the department level.

- Course delivery plan, COs (Course Objectives), POs (Program Objectives) and CO-PO mapping of each course is prepared by the respective subject group in a meeting after detailed deliberations. It is then verified at the department level by DQAC.
- Question papers which are prepared by the faculty for internal assessments are also scrutinized and approved by DQAC.
- Regular course committee meetings are conducted with faculty, advisors and student representatives to ensure the effectiveness and timely completion of each subject.
- Based on the performance of students in the internal exams, remedial classes are provided for needy students. Students facing difficulties with certain subjects/classes/issues are empathetically addressed by respective advisors/mentors.
- Attendance is clearly monitored by the advisors and defaulters are called separately for identifying reasons and corrective actions.
- Eazy campus software, used to monitor the academic system plays a vital role in ensuring the transparency of teaching learning process and also helps in its documentation.
- Result analysis is conducted after every examination by the advisors of each class and is discussed in the department and college level to take necessary actions for improvement.

Development of research competence among students

Faculty of the college has always been involved in research projects. Understanding the importance of inculcating research aptitude among students right from undergraduate level, various endeavors have been initiated by the institution.-

- Undergraduate students are mentored by faculty in this regard and students are fostered into active collaboration with faculty through research publications, conferences and in house presentations.-
- UG and PG Students are given guidance by faculty for their project works. PG students are encouraged to undergo research in collaboration with foreign Universities.
- Students are motivated and given support for presenting their work in international conferences. There are continuous interactions with international Universities and industries for research and project collaboration.
- Faculty members of the college are registered Ph.D guides of the University. This brings a wide potential for bringing in doctoral candidates into the campus as well as up-gradation of labs through various research grants and funds. Interacting with doctoral scholars is an academic motivation for students in undergraduate and post graduate levels.
- Faculty development programs play an important role in the academic development of faculty. Faculty members are allowed to pursue research programs in reputed institutions as part of career advancement which improves the research potential of the college.
- The college is a QIP Centre under MHRD which targets academicians from other institutions pursuing research. Such programs supplement our initiatives to develop the college as a Centre of Excellence for pursuing research and higher goals in education.

Promotion of entrepreneurship initiatives

The Innovation and Entrepreneurship Development Cell (IEDC) commenced operations in August 2014 with a goal to foster creativity and entrepreneurial temper among the students of Institution. The Cell operates with support from the Kerala Startup Mission, Government of Kerala, Kerala Technological University and Startup Village and was recognized as the first Startup Bootcamp in the state of Kerala in 2014. IEDC has signed formal MoUs with the aforementioned institutions and has received financial grants from the Kerala Startup Mission, AICTE and TEQIP for its operations. IEDC acts as a Virtual Incubator, Ideation Hub, Prototyping center and Patent support office for the students and the local community. It also acts as the mentoring agency for Entrepreneurship Cells of fourteen other engineering college under the Kerala Technological University in Kollam, Alapuzha and Pathanamthitta Districts.

- The cell has successfully incubated four student startups that are now independent companies and is currently incubating eight more student startups. Machinser Technologies, a 2016 incubatee, currently operates from Dubai with investments raised from abroad. All other incubated firms currently operate from Kochi where they have independent office spaces. Out of eight incubating startups, four have completed their product release and are currently undergoing incorporation. The remaining four are in product design and research phase.
- IEDC is currently in the process of setting up a Technology Business Incubator within the campus. The space for the same has been identified and MoU for financial aid for construction has been signed between the Institution and Lulu Exchange Group. The construction is expected to be completed by October 2017.
- Since its inception, IEDC has organized a whole slew of programs to awaken the entrepreneurial and creative spirit of students. One major activity was the Techno Entrepreneurial Symposium (TES) organized in April 2016. With over ten speakers from around the world including Nell Watson from Singularity University, Nicole Silver from GROW California, and Krishnan Khanna, founder of IWATCH, the two day programme provided a truly unique experience for faculty members and students alike. TES also included software and hardware hackathons and workshop for students.
- To promote Women Entrepreneurship, the cell hosts a consortium named WE-CAN, which has shown immense potential, especially in product research. WE-CAN organizes talks and workshops exclusively for female students. As a result of the relentless efforts put in by IEDC on Women Entrepreneurship, an all-female startup named KARSA, which works on a precision farming products based on Internet of Things was established in 2017.
- IEDC conducts regular workshops on emerging technologies such as Machine Learning, Neural Networks, Robotics, Mathematical and Statistical Analysis tools, Internet of Things and Digital Fabrication. This has helped build a strong scientific temper among our students and has directly resulted in startups shifting focus towards artificial intelligence based technological solutions rather than offering static web services. Three startups namely DigiEvo App Studios, Machinser Technologies and Code Company have shifted focus to AI based products from merely being web and mobile app development firms. IEDC mentor students in various national level competitions, including ones conducted by IITs and NITs. Our students were the overall winners of technical fest (Thathva) organized by NIT Calicut in 2015 and 2016. Students of robotics cell work in tandem with the IEDC and won Robotics competitions conducted by IIT Bombay and NIT Calicut.
- Three startups namely Referra, Sentyment and TYIA were winners of the National Level Entrepreneurship Promotion programme named SV.CO organized by Startup Village (The best Digital

Incubator in India). The CEOs of these startups, Vinayak Nair, Adarsh D and Asnim Ansari, received the opportunity to go on an all-expenses paid trip to Silicon Valley USA where they pitched their ideas in front of experts from Facebook and investors in Silicon Valley in June 2017.

- The current focus of the cell is to increase the number of hardware startups. For this, the cell has set-up an Internet of Things Laboratory, with financial grants from the Kerala Starup Mission, to support electronic startups and to build a “Makers” community within the campus. A FABLAB has also been setup in the institution with support from the MIT FABLAB Networks, FABLAB Kerala and Kerala Technological University to promote Personalized Digital Fabrication and Prototyping. The Lab is operational and is open to students and local community for all digital fabrication.

7.3. Best Practices

7.3.1 Elaborate on any two best practices as per the annexed format (see page 148) which have contributed to the achievement of the institutional objectives and/or contributed to the quality improvement of the core activities of the college.

Our Institution is committed to nurture engineers motivated in pursuing educational goals along with higher employability proficiency. It is ensured that our students are moulded into socially responsive citizens. A number of practices are being followed within and beyond the campus in tune with the vision and mission of the institute. Two best practices are detailed below:

TITLE OF THE PRACTICE: I

Students of TKMCE for the Empowerment of People & Society (STEPS)

GOAL

Social commitment and empathy is diminishing day by day among professional college students. It is in this scenario that the students of TKMCE have come up with STEPS. They are a group of students committed for social empowerment and spreading the message of love, kindness and empathy. STEPS approach engineering with its motto:

"Where Engineering Meets Humanity"

THE CONTEXT

The present formal education system is not completely providing the students with the information and tools to make them socially responsible citizens. In India, especially when professional education system is concerned, Universities or institutions narrowly prepare students for the workforce rather than for broader citizenship and social responsibility purposes. This led to the formation of STEPS under college students union. It was established in 2011 with a vision of engendering social responsibility and compassion to the fellow beings in the generations to come.

THE PRACTICE

STEPS is a non-profitable student organization working under college students union. All students of TKMCE are members of STEPS by default.



Over the years STEPS have conducted a number of activities both inside and outside the campus, such as restoration of hospital equipments, educational activities which include free coaching, scholarships and distribution of school kits, eye care facilities, stem cell donation programs, blood donation camps, promoting afforestation, awareness programs focused on atrocities against women and children, sustainable use of resources, and promoting safety and training to deal with common accidents and hazards. Few of the most acclaimed activities are detailed below:

SUKRITA 2016

SUKRITA-2016 is an initiative by STEPS and aims to empower and motivate the differently abled in the society, by providing them a unique opportunity to get closer to the brilliant technical minds which could offer them innovative solutions to their requirements. A three day program was conducted at TKMCE campus during February 19 to 21, 2016.

During these three days the following programs were conducted:

An Adalat was conducted to provide a venue so as to enable differently abled people find solutions to their pressing problems. Around 239 applicants met with top bureaucrats from 13 government departments and presented their grievances for adequate solution. In addition, job training or occupational therapy was organised, wherein the differently abled learned how to make homemade soap, detergent etc., to supplement their income. Physiotherapy and palliative care sessions were carried out by Mr. Ajay Raghav, a palliative physiotherapist.

An ice breaking session was organised, where the differently abled shared their experience with others. Motivational session was given by Mr. Jasfer Kottakunnu, a celebrated 'mouth' painter from Malappuram. He shared his experiences of coping with life despite being paralyzed below the neck. Moreover, competitions related with innovative products for differently abled were conducted by IEDC during the function and cash prizes were distributed to the winners.

A full day program for autistic kids was organized on the third day. About 75 children along with their parents participated in the program. One of the major outcomes of the program was a proposal to begin a special school for autistic kids wherein technical skills can be imparted. Another suggestion that came up was the creation of a state wide organization for the empowerment of autistic children.

AARDRA:

Each year thousands of people are diagnosed with life-threatening diseases such as leukemia and other blood disorders. Medical treatment can cure these patients, but success is not assured. The transfer of healthy blood stem cells has been identified by the medical community as a last chance to save the lives of such patients. More than 20000 patients die yearly in India for not having a voluntary blood stem cell donor. However, ignorance of students and public in general, about this process is a major reason why it is difficult for many patients, especially those of South Asian or other minority descent, to find suitable donors. With few registered donors available in the country, the possibility of finding a genetically matching donor for an Indian anywhere else in the world too is low. Donor registries work towards creating a diverse database where the search of a life-saving donor meets a match.

To reduce the apprehension of the society about stem cell donation and thereby to increase the number of voluntary donors, the students of TKMCE put forward the initiative AARDRA, a stem cell registry drive in various colleges across 10 districts in Kerala in July-August 2015. The event was inaugurated on 28th July by renowned neurosurgeon and former-Vice Chancellor of Kerala University, Dr. B. Iqbal. This was first of its kind being done in an educational institution in the state. Eleven initiatives at various educational institutions had created much awareness about stem cell donation, which was unheard of till 2012. The sample were collected by rubbing a swab against inner cheek and was sent to the DATRI foundation, a south India-based non-profit stem cell registry started in 2009 which has around 70,000 registered donors. The event conducted was a huge success with 4232 registrations in just 15 days. There was an average of 282 registrations per day. About 75% of our students have volunteered this event. Approximately 18.5% of Kerala's stem-cell registration is through AARDRA. The number of registrations increased by 23% after AARDRA in Kerala and 4.2% in India (Statistics are based on a news report released by DATRI. www.datriworld.org as on August 15). Kerala has emerged second among the states of the country with the maximum number of registered donors after this campaign.

BRAIN DRAIN & ADDICTED TO LIFE:

The STEPS organization has conducted state wide awareness campaign against “**BRAIN DRAIN**” and Anti-drug campaign “**ADDICTED TO LIFE**” an initiative of Government of Kerala. The STEPS organization coordinated these programs in 14 districts of Kerala simultaneously which was a grand success.

HELP ENTRANCE:

Entrance coaching is obviously costly and low income families are unable to afford this during their daily struggle of making two ends meet. "HELP ENTRANCE" is an effort to assist such students.

Features of the program include:

- Conducting a series of examination using Multiple Choice Questions (MCQ) for selected students from the schools nearby TKMCE.
- Organizing inspirational classes for motivating students.
- Organizing interactive sessions with people who have secured good ranks in entrance exams so as to share their experiences.
- Developing Android apps that aid in the engineering entrance preparation.

EVIDENCE OF SUCCESS

As an outcome of the efforts of STEPS programme, the college will be able to produce young professionals with social commitment.

Notable accomplishments of STEPS programme:

After having many hardships, the STEPS organization was successful in removing the ignorance and apprehension about stem cell donation procedure and in educating the public, its relevance as a life saving procedure for patients affected by severe blood disorders. The students were able to develop a fully-fledged blood bank, with coverage of 3 districts. They organized blood donation camps for which they received awards from IMA. The efforts towards restoration of damaged hospital equipment in Kollam district hospital with required engineering works were well appreciated. Students are managing a pain and palliative care unit in cooperation with Kottamkara Grama Panchayath. STEPS conducted an eye camp-**Kazhcha**, at Mekkone School with the help of eye specialists from Amardeep Eye hospital, Kollam.

Problem Encountered and Resources Required

There are many activities that can be done by this programme which meets the goal of STEPS in all its spirit. The fund generation is completely done internally by the students for which they have a campaign titled "**ONE RUPEE A DAY**" where each student voluntarily donates one rupee a day towards the activities of STEPS.

TITLE OF THE PRACTICE: II

The Institute Level Scholarship System

Goal

To provide support for low income students, an institutional level scholarship named TKM Merit-Cum-Means scholarship was set up with the support of the management, faculty, staff and alumni of our college.

The Context

According to the National Sample Survey Office (NSSO), the annual cost of professional and technical education has increased by 96% per student in India between 2008 and 2014. A scholarship can make a big difference in how much time and resources a student will have during college to spend on enhancing his/her experience and knowledge through service-learning, volunteer opportunities and internships. The money and security afforded by a scholarship allows him/her to be more selective in utilizing the free time thereby, adding value to his/her degree. Each year 85% of the students enrolled in the institution is admitted through pure merit and many of them, in spite of being financially weak, do not qualify for the sponsorship provided by the central and state governments and various national agencies, meant for supporting the socially and economically disadvantaged sections. This led to the installation of institutional level scholarship named TKM Merit-Cum-Means scholarship (TKM-MCM) in 2011 to ensure financial assistance through merit-cum means to the needy students according to their academic performance and financial background. TKM-MCM extends its helping hands to more and more deserving students each year.

The Practice

Our college provides scholarship for both academically excelling students coming from financially poor background. Fund raising for this venture is through voluntary contributions from the staff, faculty and management. Our alumni also contributes towards this cause. The students are requested to apply for the scholarship every year and the respective class advisor selects two student from each class based on their academic performance and income level. Every month a lump sum amount of Rs.1200/- is paid. Moreover, an active PTA renders a helping hand to the missions of TKM-MCM by supporting students in their curricular and extra-curricular activities. Parent Teacher Association also provides financial aid for taking part in national level competition for students. Last year financial support was given to students to participate in SAE BAJA event by the PTA. In each class semester toppers are given Rs. 1000 for buying books.

Evidence of Success

The TKM scholarship system has been functional for a long period of time and has been a motivational factor for many of the students. There is an inherent and healthy competition in every batch to grab these scholarships/awards. The prestigious

awards are given away in a grand function conducted by the college every year, known as the merit evening where representatives of alumni, PTA and other dignitaries are present along with the students and faculty of the college. These meetings motivate students and encourage them to raise their aspirations about their future. Secrecy maintained by the college about the recipients of TKM merit cum means scholarship has been an important factor in its success in the past years.

DEPARTMENT EVALUATIVE REPORT

DEPARTMENT EVALUATIVE REPORT

**DEPARTMENT OF CIVIL ENGINEERING
EVALUATIVE REPORT**

1. Name of the Department : **Civil Engineering**
2. Year of Establishment: **1958**
3. Names of Programmes /Courses offered :

No	Engineering/Technology			Year of Starting
1	UG	B.Tech	Civil Engineering	1958
2	PG	M.Tech	Structural Engineering & Construction Management	1989
3	Doctoral	Ph.D	Civil Engineering	2000

4. Names of Inter disciplinary courses and the Departments/units involved :
UG :Kerala University 2008 Scheme

No	Subjects	Sem.	Departments Involved
1	Engineering Mathematics-I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Graphics	I&II	Mechanical Engineering
5	Basic Mechanical Engineering	I&II	Mechanical Engineering
6	Basic Electrical&ElectronicEngineering	I&II	Electrical&Electronics Engineering
7	Basic Communication and Information Engineering	I&II	Electronics & Communication Engineering
8	Engineering Workshop	I&II	Mechanical Engineering
9	Engineering Mathematics –II	III	Mathematics
10	Engineering Mathematics –III	IV	Mathematics
11	Humanities	IV	Mechanical Engineering
12	Fluid Mechanics Lab	IV	Mechanical Engineering

UG : Kerala University 2013 Scheme

No	Subjects	Sem.	Departments Involved
1	Engineering Mathematics-I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Graphics	I&II	Mechanical Engineering
5	Basic Mechanical Engineering	I&II	Mechanical Engineering
6	Basic Electrical Engineering	I&II	Electrical&Electronics Engineering
7	Basic Electronics Engineering	I&II	Electronics & Communication Engineering

8	Mechanical Engineering Workshop	I&II	Mechanical Engineering
9	Electrical & Electronics Engineering Workshop	I&II	Electrical & Electronics Engineering
10	Engineering Mathematics –II	III	Mathematics
11	Engineering Mathematics –III	IV	Mathematics
12	Humanities	IV	Mechanical Engineering
13	Fluid Mechanics Lab	IV	Mechanical Engineering

UG : Kerala Technological University 2015 Scheme

No	Subjects	Sem.	Departments Involved
1	Calculus	I	Mathematics
2	Engineering Physics	I	Physics
3	Engineering Graphics	I	Mechanical Engineering
4	Basics of Electronics Engineering	I	Electronics & Communication Engineering
5	Electronics Engineering Workshop	I	Electronics & Communication Engineering
6	Engineering Physics Lab	I	Physics
7	Differential Equations	II	Mathematics
8	Engineering Chemistry	II	Chemistry
9	Basics of Mechanical Engineering	II	Mechanical Engineering
10	Basics of Electrical Engineering	II	Electrical & Electronics Engineering
11	Engineering Chemistry Lab	II	Chemistry
12	Electrical Engineering Workshop	II	Electrical & Electronics Engineering
13	Mechanical Engineering Workshop	II	Mechanical Engineering
14	Linear Algebra & Complex Analysis	III	Mathematics
15	Probability Distributions Transforms and Numerical Methods	IV	Mathematics
16	Business Economics	IV	Mechanical Engineering
17	Fluid Mechanics Lab	IV	Mechanical Engineering

5. Annual/semester/choice based credit system(programmewise)

No	Engineering/Technology	Programme	Annual/Semester Credit System
1	UG	B. Tech	Semester Based Credit System
2	PG	M. Tech	Semester Based Credit System

6. Participation of the department in the courses offered by other departments:

UG : Kerala University 2008 Scheme

No	Subjects	Sem	Department
1	Engineering Mechanics	I&II	All branches other than Civil Engineering
2	Basic Civil Engineering	I&II	All branches other than Civil

			Engineering
3	Geometrical Drawing	I&II	Department of Architecture
4	Structural Mechanics I	I&II	Department of Architecture
5	Mechanics of Solids	III	Mechanical Engineering
6	Mechanics of Solids	III	Mechanical Stream- Production Engineering
7	Engg. Drawing Part B :Civil Engg. Drawing and Estimation	III	Mechanical Engineering
8	Engg. Drawing Part B :Civil Engg. Drawing and Estimation	III	Mechanical Stream- Production Engineering
9	Civil Engineering Lab	III	Mechanical Engineering
10	Civil Engineering Lab	III	Mechanical Stream-Production Engineering
11	Structural Mechanics-II	III	Department of Architecture
12	Surveying & Levelling	III	Department of Architecture
13	Structural Mechanics-III	IV	Department of Architecture
14	Building Services I-Water Supply & Sanitary Engineering	V	Department of Architecture
15	Structural Mechanics-IV	V	Department of Architecture
16	Estimation & Specification	VI	Department of Architecture
17	Design of RCC Structures	VI	Department of Architecture
18	Adv. Structural Systems	VIII	Department of Architecture

UG :Kerala University 2013 Scheme

No	Subjects	Sem	Department
1	Engineering Mechanics	I&II	All branches other than Civil Engineering
2	Basic Civil Engineering	I&II	All branches other than Civil Engineering
3	Geometrical Drawing	I&II	Department of Architecture
4	Structural Design –I	I&II	Department of Architecture
5	Surveying & Levelling	I&II	Department of Architecture
6	Mechanics of Solids	III	Mechanical Engineering
7	Mechanics of Solids	III	Mechanical Stream- Production Engineering
8	Engg. Drawing Part B: Civil Engg. Drawing and Estimation	III	Mechanical Engineering
9	Engg. Drawing Part B: Civil Engg. Drawing and Estimation	III	Mechanical Stream- Production Engineering

10	Civil Engineering Lab	III	Mechanical Engineering
11	Civil Engineering Lab	III	Mechanical Stream- Production Engineering
12	Structural Design –II	III	Department of Architecture
13	Estimation & Specification	IV	Department of Architecture
14	Building Services I-Plumbing & Sanitation	IV	Department of Architecture
15	Structural Design –III	IV	Department of Architecture
16	Structural Design –IV	V	Department of Architecture
17	Structural Design V- Advanced Structural Systems	VI	Department of Architecture

UG : Kerala Technological University 2015 Scheme

No	Subjects	Sem	Department
1	Engineering Mechanics	I	Electrical & Electronics, Chemical, Computer Science, Electronics & Communication Engineering
2	Basics of Civil Engineering	I	Chemical, Electronics & Communication Engineering
3	Civil Engg. Workshop	I	Chemical, Electronics & Communication Engineering
4	Engineering Mechanics	II	Mechanical Engg. Mechanical Stream –Production Engg.
5	Basics of Civil Engineering	II	Electrical & Electronics Engg. Mechanical Engg. Mechanical Stream –Production Engineering
6	Civil Engg. Workshop	I	Electrical & Electronics Engg. Mechanical Engg. Mechanical Stream –Production Engineering
7	Material Testing Lab	III	Mechanical Engineering
8	Material Testing Lab	IV	Mechanical Stream –Production Engineering
9	Theory of Structures I	I	Department of Architecture
10	Theory of Structures II	II	Department of Architecture

7. Courses in collaboration with other universities, industries, foreign institutions, etc. :
Nil

8. Details of courses/programmes discontinued (if any) with reasons. : Nil

9. Number of Teaching posts

No	Teaching post	Sanctioned	Filled
1	Professors	14	14
2	Associate Professors	5	5
3	Assistant Professors	16	16

10. Faculty profile with name, qualification, designation, specialization: 2016 -17

No	Name	Qualification	Designation	Specialization	Years of experience	Ph.D Students guided for the last 4 yrs
1	Dr. Suresh S.	Ph. D	Professor	Structural Engineering	33	-
2	Dr. Bushra I.	Ph. D	Professor	Geo Technical Engineering	33	-
3	Prof. Jelaja R.	ME	Professor	Structural Engineering	33	-
4	Prof. Nizad A.	M.Tech	Professor	Structural Engineering & Construction Management	33	-
5	Prof. Hasoona I.	M.Tech	Professor	Transportation Engineering	27	-
6	Dr. Anitha Joseph	Ph.D	Professor	Off shore Structures	31	4(ongoing)
7	Dr. Saraswathy B.	Ph.D	Professor	Structural Engineering	31	-
8	Dr. Sudhi Mary Kurian	Ph.D	Professor	Housing	31	-
9	Dr. Reebu Zachariah Koshy	Ph.D	Professor	Transportation Engineering	30	3 (ongoing)
10	Dr. Sunil Kumar B.	Ph.D	Professor	Urban Planning	30	-
11	Dr. Sirajuddin M.	Ph.D	Professor	Structural Engineering & Construction Management	27	-
12	Dr. Najee M.	Ph.D	Professor	Environmental Engineering	27	-
13	Dr. Bindu S.	Ph.D	Professor	Applied Mechanics	27	-
14	Prof. Mohammed Asim	M.Tech	Associate Professor	Structural Engineering & Construction Management	22	-

15	Dr. Sajeeb R.	Ph.D	Professor	Structural Engineering	25	1 (ongoing)
16	Dr. Nazeer M.	Ph.D	Associate Professor	Structural Engineering	25	3(ongoing)
17	Dr. Seema K. Nayar	Ph.D	Associate Professor	Construction Management	25	-
18	Prof. Sajida Razaque	M.Tech	Associate Professor	Structural Engineering & Construction Management	25	-
19	Prof. Sulphia Beevi U.	M.Tech	Assistant Professor	Structural Engineering & Construction Management	23	-
20	Dr. Anu V. Thomas	Ph.D	Associate Professor	Construction Management	16	-
21	Prof. Adarsh S.	M.Tech	Assistant Professor	Water resources Engineering	13	-
22	Prof. Hazeena R.	M.Tech	Assistant Professor	Structural Engineering & Construction Management	13	-
23	Prof. AmalAzad Sahib(<i>under QIP</i>)	M.Tech	Assistant Professor	Geo Technical Engineering	10	-
24	Prof. Kavitha Madhu	M.Tech	Assistant Professor	Transportation Engineering	10	
25	Prof. Rekha Ambi (<i>under QIP</i>)	M.Tech	Assistant Professor	Structural Engineering & Construction Management	9	
26	Prof. Ramaswamy K.P. (<i>under QIP</i>)	M.Tech	Assistant Professor	Building Technology	8	
27	Prof. Muhammed Siddik A.	M.Tech	Assistant Professor	Environmental Geotechnology	8	-
28	Prof. Chinsu Mereena Joy	M.Tech	Assistant Professor	Structural Engineering & Construction Management	7	-
29	Prof. Mamata M(On leave)	M.Tech	Assistant Professor	Environmental Engineering	5	-
30	Prof. Sruthi R. Krishnan	M.Tech	Assistant Professor	Environmental Geotechnology	5	-
31	Prof. Althaf M	M.Tech	Assistant Professor	Structural Engineering	1	
32	Prof. Sarif N	M.Tech	Assistant Professor	Structural Engineering	1	

33	Prof. Vishnu R	M.Tech	Assistant Professor	Transportation Engineering	1	
34	Dr.Priya K L	Ph.D	Assistant Professor	Environmental Engineering	1	
35	Prof. Mohammed Thowsif	M.Tech	Assistant Professor	Structural Engineering	6months	
36	Dr. Udayakumar J.	Ph.D	Assistant Professor	Geology	13	2 (ongoing)
37	Prof. Nileena Suresh Kumar	M.Tech	Assistant Professor (Temporary)	Geotechnical Engineering	2	-
38	Prof. Vineetha Guruprasad	M.Tech	Assistant Professor (Temporary)	Structural Engineering & Construction Management	2	-
39	Prof. Meenu Tomson	M.Tech	Assistant Professor (Temporary)	Transportation Engineering	2	-

No. of Ph.D students guided from 2013-2017

No	Name of faculty	No.of Ph.D students guided for the last 4 years
1	Dr.Lalu Mangal	3 awarded ,3 ongoing
2	Dr.Ayoob S	1 awarded,2ongoing

11. List of senior visiting faculty: Nil
12. Percentage of lectures delivered and practical classes handled (programme wise)by temporary faculty: UG - 10.3%, PG - Nil
13. Student-Teacher Ratio

UG Programme

No	Academic Year	Student Strength				Faculty strength	Student-Teacher Ratio
		II	III	IV	Total		
1	2013-14	154	140	145	439	33	13.3
2	2014-15	150	154	140	444	32	13.9
3	2015-16	151	150	154	455	30	15.2
4	2016 -17	136	152	150	438	32	13.7

PG Programme

No	Academic Year	Student Strength			Faculty Strength	Student-Teacher Ratio
		I	II	Total		
1	2013-14	18	16	34	3	11.34
2	2014-15	18	18	36	3	12
3	2015-16	18	18	36	3	12
4	2016 - 17	18	18	36	3	12

14. Number of academic support staff(technical) and administrative staff; sanctioned and filled

Description	2013-14		2014-15		2015-16		2016-17	
	S	F	S	F	S	F	S	F
Technical Staff	16	16	16	16	16	16	16	16
Administrative Staff	1	1	1	1	1	1	1	1

*S-Sanctioned

*F-Filled

15. Qualifications of teaching faculty with DSc/D.Litt/Ph.D/MPhil/PG

No	2013-14	2014-15	2015-16	2016 -17
B.Tech	0	0	0	0
M.Tech	19	19	16	19
Ph.D	17	16	17	16

16. Number of faculty with ongoing projects from a) National b) International funding agencies and grants received

No	Name of Faculty	Title of the project	Funding agency and Year	Amount received in lakhs
1	Dr.Benny Joseph	Development of Green Concrete	Kerala State Council for Science &Tech. (2011-12)	8.613
2	Prof.Adarsh S.	Finer Scale Rainfall Projection of Kerala Meterological Subdivision	Centre for Research &Dev.(2012-13)	1.45
3	Dr.Seema K. Nayar	Formulation of a Process Assessment Model for Jalanidhi	TEQIP (2013-14)	1.15
4	Prof.Amal Azad Sahib	Electro Kinetic Remediation of Kuttanad Clay	TEQIP (2013-14)	1.35
5	Prof.Sajida Razaque	Investigation of Interlocking Building Block Masonry	TEQIP (2013-14)	1
6	Dr.M. Nazeer	Investigations on the Durability of Ternery Blended Cementitious Systems	TEQIP (2013-14)	1.07
7	Prof.Rekha Ambi	Investigations on the Properties of Concrete in Blended Cementitious Systems	TEQIP (2013-14)	0.85
8	Dr.Benny Joseph	Utilization of ETP Solid Waste	KMML (2014-15)	3
9	Prof. Adarsh S Prof. Mohammed	Developing sub daily IDF curves for urban cities in	IE(India)	0.5

	Siddik	Kerala meteorological subdivision using Multivariate Empirical Mode Decomposition and scaling theory		
10	Prof. Adarsh S Prof. Mohammed Siddik	An investigation into the percolation of rainwater on permeable pavements using rainfall simulator	TEQIP(2016-2017)	1.28
11	Dr.M.Nazeer	Waste Copper Slag in Concrete	Centre for Research & Dev.(2016-17)	0.4

17. Departmental projects funded by DST-FIST;UGC, DBT, ICSSR, etc. and total grants received

No	Name of Faculty	Title of the project	Year	Funding agency	Amount in lakhs
1	Dr.Anitha Joseph	Comparative Study of Effectiveness of Breakwaters and Groynes for the Protection of Kerala Coast	2011-12	AICTE	8.50
2	Dr.Reebu Zachariah Koshy	Modeling & Study of the Characteristics of Motorized Two-Wheeler Traffic on Urban Roads	2011-12	AICTE	7.1
3	Dr.Anitha Joseph	Three Legged Articulated Type Supporting Structure for Off-Shore Wind Energy Turbine	2012-13	AICTE	10

18. Research Centre/facility recognized by the University

- Approved Research Centre of the University of Kerala
- Quality Improvement Programme(QIP) Centre of All India Council for Technical Education(AICTE)

19. Publications: Last four years (Details enclosed as Annexure)

1. Number of publications by Faculty (2013- 2017)

No	Publications	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	14	11	8	17	70
2	International Conferences	19	10	26	6	61
3	National Conferences	2	2	3	4	11

Books published: 5

2. Number of publications by Students (2013- 2017)

No	Publications	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	4	4	1	7	16
2	International Conferences	5	3	16	20	44
3	National Conferences	1	1	1	9	12

20. Areas of consultancy and income generated

Name of laboratory	2013-14	2014-15	2015-16	2016-17	Total	
Income generated (Rupees)						
Concrete lab.	774242	568439	879141	318300	2540122	
Strength of materials lab	234819	224385	316511	344318	1120033	
Geotechnical lab.	45140	183749	44029	40105	313023	
Transportation lab.	11267	21432	24634	87056	144389	
Structural consultancy wing.	171294	147500	636000	258481	1213275	
Valuation wing.	KMML	283565	98000	65716	62271	509552
	IRE	-	961413	-	-	961413
TOTAL	1520327	2204918	1966031	1110531	6801807	

21. Faculty as members in a)National committees b)International Committeesc)Editorial Boards

Faculty are members in various National Committees such as Institution of Engineers(India), Indian Society for Technical Education(ISTE), Energy Conservation Society(ECS), Indian Geotechnical Society(IGS), Indian Road Congress(IRC), Indian Association of Structural Engineering(IASE), Institute of Steel Development & Growth(INS DAG), Institute of Town Planners, India(ITPI), Institute of Research Engineers and Doctors(UACSE), Indian Society for Wind Engineering(ISWE), Indian Society for Hydraulics(ISH), Quilon Management Association(QMA), Association of Environmental Analytical Chemistry of India, Indian Water Works Association, Indian Meteorological Society, Indian Association of Hydrologists.

Details enclosed as Annexure.

22. Student Projects

- a) **Percentage of students who had one in-house projects including interdepartmental/ programme :UG: 100%**
- b) **Percentage of students who had one in-house projects including interdepartmental/ programme:PG (2013-2017) : 95.66%**
- c) **Percentage of students placed for projects in organizations outside the institution**

23. a. Awards/Recognitions received by faculty

No:	Name of Faculty	Awards/Recognitions
1	Dr. Anitha Joseph	Gold Medal and Certificate awarded for best paper in the subject from Institution of Engineers (India) for the research paper titled "Feasibility Study of Offshore Breakwater System as a Protection Method for Kerala Coast" (Journal of Institution of Engineers (India), Vol. 91, January 2011, pp 11-15. Authors: Femine Treesa, Anitha Joseph, Lalu Mangal)
2	Dr. Sudhi Mary Kurien	Gold medal in Professional diploma in quality management
3	Dr. Sajeeb R	First rank in B.Tech (Civil Engineering) from University of Kerala (1991)
4	Dr. Seema K Nayar	Second rank for B.Tech Degree Exam (1988) from the University of Kerala
5	Dr. Anu V Thomas	First rank in B. Tech Civil Engineering, M. G University, Kottayam, 1998
6	Prof. Adarsh S	<p>Topper in water resources stream from IIT Bombay for MTech Programme in 2009</p> <p>Sri R N Prasad Biennial Award for Best paper on the theme "Slope stability and Landslides" by Indian Geotechnical Society (2010-11)</p> <p>IIT Bombay Heritage Fund Scholarship (Prabhakar Mahajan Scholarship) IIT Bombay (2007)</p> <p>Research incentive from CERD Kerala for the paper 'Modeling Parametric Uncertainty in Optimal Open Channel Design Using FORM-PGSL Coupled Approach' Published Stochastic Environmental Research and Risk Assessment Springer 26(5):709-720</p> <p>Best paper award in the international conference MTSWRM'14 at IIT Hyderabad Dec 28-29, 2014. Paper: "Multiscale Analysis of Reservoir Inflow Time Series Using</p>

		<p>the Hilbert Huang Transform"</p> <p>Received the certificate of appreciation for the instrumental role as SPOC for getting an AAA rating for the NPTEL local chapter of the college during September-October 2016 exams</p> <p>The paper entitled "Prediction of Daily Suspended Sediment Load in a Non-Stationary Environment using MEMD-SLR Coupled Approach" Won the best paper award in FEAST2017 , NIT Tiruchirappally March 31, April 1 2017</p>
7	Prof. Ramaswamy K P	M.Tech topper in Civil Engineering, IIT Madras First Rank in B.Tech Civil Engineering from University of Calicut
8	Dr. Priya K. L.	<p>Best paper Award in Engineering Science during Kerala Science Congress, 2013</p> <p>Outstanding Woman in Engineering (Civil) - Venus International Foundation - VIWA 2017</p>

b. Awards/Recognitions received by Student

Name of Student	Recognitions	Awarded by/ Event
2013-14		
Gowri R Jagan G Joseph Abhiroop G	First place in TERVEZES	INCEPTO – 13 12 th Annual State Convention of ISTE held at TKMCE, Kollam
Romana Maryam Rasheed Gowri R	Secured first place in the technical quiz.	TEZORO -14 Techno managerial symposium of TKM College of Engineering
Syamili Sarma	Secured first place in the event "True Civil Engineer"	TEZORO -14 Techno managerial symposium of TKM College of Engineering
Swathi	Secured second place in the event "True civil Engineer".	TEZORO -14 Techno managerial symposium of TKM College of Engineering
Syamili Sarma Swathy S	Secured third place in the event "JuzCadding"	TEZORO -14 Techno managerial symposium of TKM College of Engineering
2014-2015		
Priyanka	Secured second prize in Black board magician	TEZORO -15 Techno managerial symposium

		of TKM College of Engineering
Akash Alen Austin Chandu Bose	Won First prize in Cube of cratos	TEZORO -15 Techno managerial symposium of TKM College of Engineering
Jithin Rocky	Won First prize in Civil treasure hunt	TEZORO -15 Techno managerial symposium of TKM College of Engineering
Al Ameen M A Mohammed Thashreef	Won third position in CADD pro Challenge	TEZORO -15 Techno managerial symposium of TKM College of Engineering
Gokul Gopu Doni Fernandes Mohammed Bin Zakaria	Won First Prize in Bridge Design Contest	TEZORO -15 Techno managerial symposium of TKM College of Engineering
Krishna Kumar Singh	Won Third place in Kerala university inter Collegiate (inter zone) table tennis man tournament	University of Kerala
Anil Singh	Third place in Kerala university inter Collegiate (inter zone) table tennis man tournament	University of Kerala
Jithin Joseph N	Runner up in the Kerala University inter collegiate shuttle badminton championship men	University of Kerala
Akbar Basheer	Third place in the Kerala University inter collegiate(inter zone) Tennis men Tournament	University of Kerala
Praveen B L	Winner of the Kerala University chess men champio	University of Kerala
Akshay Anandu Anoop Alin Sachin venu	Winner- Treasure Hunt	GEC Barton Hill
2015-2016		
AnanduSreerag Sachin Venu Bibin Benny Akshay R S Anoop Raj	First prize in IBCC Bridge design contest	IITM
VipinShaji Rohith Ranga Prasad Priyanka Pandey Mukesh Yadav Lakshmi Sudhakaran Krishna Priya	Second Prize in IBCC Bridge design contest	IITM

Rahul Raju Krishna Kumar Singh MukeshYadav	First prize in Modeling competition CEA FEST	IITM
Arjun Raaj	First place in "FACE TO FACE" held as part of Tathva'15	NITC
Arjun Raaj	Second place in "INQUISTO VITOUSO" held as part of Tathva'15	NITC
Monica Shine	First place in "INFORMALS TREASURE HUNT" held as part of Tathva'15	NITC
Mukesh Yadav	First position in "MODELLING", during CEA FEST'16	IITM
Lekshmi D	First position in the event 'Potential Professor' CEA Fest 2016	IITM
Devika Sharji (C5)	Second place in the Kerala University Judo Women championship	University of Kerala
2016-2017		
Akshatha M S	Topper(with top 5% students) in the course "Hydration, Porosity & Strength of Cementations materials"	NPTEL
Hamim Sherif	First position in the event Master piece, TATHWA	NITC
Nandana B.M.	First place in Annual Badminton Championship, Second in Girls badminton - Womens day, First place in Treasure hunt, First place in Face to Face, TATHWA	NITC

- Major Academic Achievements of Students in the Final year B. Tech degree Examination conducted by University of Kerala in past years is listed below.
- Aswathy Rajendran secured second rank in the year 2014. In addition, our students secured 3, 4, 5, 7, 8, 9 and 10 ranks
- Athul M Madhu won second rank in the year 2015. In addition, our students won 3, 4, 6, 9 and 10th ranks. Also, out of 17 students who secured above 9 CGPA in Kerala University, 10 are from our college.
- Lekshmi Mohan second rank in the year 2016. In In addition, our students won 3, 5, 6 and 9 ranks.
- GATE score for 2016 Batch: Top scorers: Greeshma G.Gireesh, Rank18, Bibin Benny,

Rank203 (more than 40 students acquired admissions in IISc, IITs, NITs and other Institutes of repute) R&D Achievement – Rukku Chandran, Sruthi V Roy and Jesna Fathima of Sixth Semester secured R&D grant for Undergraduate students by ‘Institution of Engineers (India)’ (2016). 5 students shortlisted for SAP “Innovative Technological Solutions for disaster risk reduction” by ILDM in November, 2016.

- Received Financial assistance Kerala state council of science, technology and environment –“Development of drought Severity-Duration-Frequency Curves for Kerala based on Meteorological Drought Index” 120/SPS60/2016/KSCSTE dt. 16/2/2017

24. List of eminent academicians and scientists/visitors to the department

Academic Year	Date	Visitor Name and Address/Position
2013-2014	29-7-2013	Dr.A. Cini, Asst. Executive Engineer, Kerala PWD, Bridges Sub division, Kollam
	25-11-2013	Prof. D. Nagesh Kumar, Professor, IISc Bangalore
	25-11-2013	Dr. T. I. Eldho, Professor, IIT Mumbai
	26-11-2013	Dr. George K. Varghese, Asst. Professor, NIT Calicut
	26-11-2013	Dr. Girish Gopinath, Scientist, CWRDM Calicut
	27-11-2013	Dr. Savthri S. Scientist, NIIST, Thiruvananthapuram
	12-12-2013 to 14-12-2013	Dr. Muhammed Fadhil Nuruddin, Professor, Universiti Teknologi, Petronas, Malaysia Dr. Vinu Unnithan, Asst. Professor, University of Alabama Dr. Premkumar, Engineering Specialist, Nserc, Worley Parsons, Canada. Prof. R. G. Robinson, Professor, IIT Chennai Dr. Lakshman Nandagiri, Professor, NIT Surathkal Dr. Ajith Haridas, Chief Scientist & Head, Process Engg. & Environmental Technology Division, NIIST, CSIR, Thiruvananthapuram
	23-1-2014	Dr. Nilanjan Saha, Professor, IIT Chennai
	23-1-2014	Dr. N. Gopalakrishnan, Scientist, SERC, Chennai
	24-1-2014	Dr. N. Ganesan, Professor, NIT Calicut
	3-3-2014	Dr. George K. Varghese, Asst. Professor, NIT Calicut
	3-3-2014	Dr. Mathavkumar Asst. Professor, NIT Calicut
	4-3-2014	Dr. G. Madhu, Associate Professor, CUSAT
	5-3-2014	Dr. V. B. Manilal, Dr. Krishnakumar, Scientists, NIIST, CSIR, Thiruvananthapuram
	24-6-2014	Dr. R. G. Robinson, Professor, IIT Chennai
	25-6-2014	Dr. G. R. Dodagoudar, Professor, IIT Chennai
25-6-2014	Dr. G. V. Rao, Former Professor, IIT Delhi	
24-6-2014	Dr. S. Chandrakaran, Professor, NIT Calicut	
2014-2015	4-9-2014	Mr. L. Radhakrishnan IAS Secretary to the Chief Minister, Kerala
	20-11-2014	Mr. Anil Kumar Pillai, DGM-Tech Services, Ramco Cements Ltd, Chennai.
	8-1-2015	Padmasri G. Sankar, Founder Director, Habitat

		Technology
	9-1-2015	Dr. B. V. V. Reddy, Professor, IISc Bangalore
	9-1-2015	Dr. Monto Mani, Professor, IISc Bangalore
	16-3-2015	Dr. Radha Krishna Pillai, Professor, IIT Chennai
	16-3-2015	Dr. N. Ganesan, Professor, NIT Calicut
	17-3-2015	Dr. Cinitha A., Scientist, SERC Chennai
	17-3-2015	Dr. K. B. Anand, Professor, Amrita University, Coimbatore
	18-3-2015	Dr. Job Thomas, Associate Professor, CUSAT
2015-2016	25-6-2015	Dr. Antony Jayasekhar, Professor, Annamalai University
	27-6-2015	Dr. George Mathew, Associate Professor, CUSAT
	9-10-2015	Mr. Somasekhar S, Deputy General Manager, BPCL, Kochi Refineries, Ambalamugal
	29-10-2015	Er. Pennamma, Chief Engineer, Buildings
	9-12-2015	Dr. Gangan Prathap, Honorary Professor, APJ Abdul Kalam Technological University (Former Vice Chancellor CUSAT, Former Director NISCAIR)
	9-12-2015	Prof. P. K. Aravindan, Professor (Rtd), IIT Chennai
	9-12-2015	Prof. Devdas Menon, Professor, IIT Chennai
	10-12-2015	Prof. K. C. Iyer, Professor, IIT Delhi
	10-12-2015	Prof. Tom V. Mathew, Professor, IIT Mumbai
	10-12-2015	Prof. Samson Mathew, Professor, NIT Trichy
	10-12-2015	Dr. B. G. Sreedevi, Director, National Transportation Planning & Research Centre (NATPAC)
	11-12-2015	Prof. P. Basak, Visiting Professor, NIT Jamshedpur
	11-12-2015	Prof. Zulkifli Yusop, Universiti Teknologi, Malaysia
	11-12-2015	Dr. Fadilah Yusop, Universiti Teknologi, Malaysia
	11-12-2015	Mr. Abdullah Hasan Abdullah, C.S.M.R.S, New Delhi - 1100116
	04-1-2016	Er. George Abraham, L & T
	1-2-2016	Er. Harikumar P S, Project Manager, Reinshaw Technology, Pune
	8-2-2016	Mr. Sreeganesh V Nair LEED : AP & GRIHA, Evaluator & Trainer
	15-2-2016	Prof. Lakshman Nandagiri, NIT, Suratkal
	17-2-2016	Prof. K P Sudheer, IIT Chennai
	17-2-2016	Dr. George, Scientist F, CWRDM
	18-2-2016	Dr. George K Varghese, NIT Calicut
	18-2-2016	Mr. Mathew Philip, Financial Advisor & Chief Accounts Officer, Konkan Railway Corporation Ltd.
	19-2-2016	Dr. Raaj Ramsankaran, Asst. Professor, IIT Bombay
	19-2-2016	Prof. M. Janga Reddy, IIT Bombay
	25-2-2016	Dr. V Syam Prakash, Joint Director of Technical Education
	3-3-2016	Mr. Hemanth T, ICL, Kochi
7-4-2016	Er. P K Rajeev, Superintending Engineer, PWD	
7-4-2016	Ms. Nicole, Delegate, Entrepreneurial Symposium 2016	

	10-4-2016	Mr. Krishan Khanna, Chairman, India Watch
2016-2017	28-07-2016	Dr. Santhosh Sathyapal Manager, Operations, Kerala Rural Water Supply & Sanitation Agency
	28-07-2016	Dr. Pradeep Sudarsan , Soft Skill Trainer
	17- 08 -2016	Er. Prem Joseph, Autodesk Solutions Canada
	29-08 -2016	Mr. Rex Morgan, managing Partner, Terra Trender, Newzealand
	1-09-2016	Er. Biju Balakrishnan, Advent Consulting Engineers, Melbourne
	5-10-16	Mr. Shefeen Ahamed K IPS, SP, Thiruvananthapuram Rural
	9-01-2017	Mr. E A Abdu, Vice President-Engineering, Skyline Builders
	10-1-2017	Prof. K C Iyer, IIT Delhi
	11-1-2017	Er. S Sreekumar, GM(Planning), Airports Authority of India.
	11-1-2017	Er. A Joe Paulson, Chief Engineer, Karunya University, Coimbatore.
	12-1-2017	Dr. Koshy Varghese, IIT Madras.
	14-1-2017	Er. Balakrishnan T V, Kerala State Harbour Engineering Department.
	31-1-2017	Dr. Job Thomas, Cochin Univrsity
	13-2-2017	Dr. Rajan Rawal, Executive Director, Centre for Advanced Research in Building and energy, Ahamedabad.
	14-2-2017	Dr. R. Harikumar, Director ANERT
	15-2-2017	Dr. Pankaj Khalita, Assistant Professor, IIT Guwahati
	15-2-2017	Er. Jose Thomas P, GM, CIAL
	16-2-2017	Dr. K. Murali, IIT Madras.
	16-2-2017	Er. Promod P Mani, Senior Engineer, IRE
	16-2-2017	Er. Narayanan A, Head Energy efficiency, EMC
20-2-2017	Er. Purushothaman, Section Head AE lab VSSC	
8-3-2017	Mr. Jaswanth Sushana, BASF India Ltd	
8-3-2017	Er. George Varghese K, EKK Infra	

25. Seminars/Conferences/Workshops (National &International)organized & the source of funding (2013-2017)

Year	Seminars/ Conferences /Workshops	Title	Source Of Funding	Developed/ organized by
2013-2014	Workshop	GIS and Applications in Civil Engineering	TEQIP	Prof. Adarsh S
	Workshop	Basic Skills on Computer	TEQIP	Dr. B. Saraswathy

	Workshop	Training on AUTOCAD 2D Civil	TEQIP	Dr. B. Saraswathy
	Workshop	Language Acquisition Programme	TEQIP	Prof. Amal Azad Sahib
	FDP	Total Station and GPS	TEQIP	Prof. Hazeena R.
	FDP	Advances in Hydro-systems Modeling and Climate Change Impact Assessment	TEQIP	Prof. Adarsh S, Prof. Vincent K. John
	International Conference	Second International Conference on Modeling and Simulation in Civil Engineering	TEQIP	Dr. Bushra I, Dr. Soosan J. Panicker
	FDP	Experimental Techniques in Materials and Structures	TEQIP	Prof. Chinsu Mareena Joy, Dr. Anitha Joseph
	FDP	Awareness Programme on Effective Conduct of Civil Engineering Laboratory Classes	TEQIP	Dr. M. Nazeer, Mr. Ahammed Kannu M
	FDP	Waste Management – Issues and Priorities	TEQIP	Dr. Najee M
	FDP	New Frontiers in Geo-Technical Engineering	TEQIP	Prof. Amal Azad Sahib, Dr. Bushra I
2014-2015	Workshop	Innovation in Mass Housing	TEQIP	Dr. Seema K. Nayar, Dr. Anu V. Thomas
	FDP	Emerging Trends in Construction and Maintenance of Structures	AICTE	Prof. Sajida Razaque, Prof. Sulphia Beevi U
2015-2016	Workshop	Concrete for Present and Future	TEQIP	Dr. Benny Joseph, Prof. Hazeena R
	FDP	Advanced Techniques for Sustainable Water Resources and Environmental Management	AICTE	Prof. Adarsh S. and Prof. Muhammed Siddik A.
	FDP	Tropical Landscape Design	TEQIP	Dr. B. Sunilkumar (Dept. of Civil Engg.) & Dr. Santhoshkumar K.
	International Conference	Third International Conference on Modeling and Simulation in Civil Engineering	TEQIP	Dr. Bindhu S, Dr. Anu. V. Thomas

2016-2017	FDP	Recent Advances in Project Planning and Management	AICTE	Dr. Reebu Zachariah Koshy & Prof. Mohamed Asim
	FDP	Advances in Concrete Technology with Special Emphasis on Sustainable Development	AICTE	Dr. M. Nazeer & Prof. Sulphia Beevi U.
	FDP	Sustainable Development & Green Energy Technologies	AICTE	Prof. Chinsu Mareena Joy & Dr. Anitha Joseph
	FDP	Health Monitoring of Structures	AICTE	Prof. Hazeena R. & Prof. Althaf M.
	FDP	Recalibrating the Industry-Institute Space	AICTE	Dr. Seema K. Nayar & Dr. Anu V. Thomas

26. Student profile programme /course wise

(i) UG Programme

Academic Year	Applications received	Enrolled		Total
		*M	*F	
2011 - 2012	Allotted from common rank list prepared by the Entrance Commissioner, Govt. of Kerala	73	59	132
2012 -2013		83	59	142
2013 -2014		75	64	139
2014- 2015		79	61	140
2015-2016		74	53	127
2016 -2017		78	64	142

(ii) PG Programme

Academic Year	Applications received	Enrolled		Total
		*M	*F	
2011 – 2012	Allotted from common rank list prepared by the Directorate of Technical Education, Govt .of Kerala	7	10	17
2012 -2013		6	12	18
2013 -2014		9	9	18
2014- 2015		7	11	18
2015-2016		7	11	18
2016-2017		6	12	18

*M=Male *F=Female

(iii) Students pass percentage for the past four years

Programme	2013-14	2014-15	2015-2016	2016-17
B Tech-Civil Engineering	72.2	82.5	80.92	Result awaited
M Tech-Civil Engineering	83	83	83	Result awaited

27. Diversity of Students

UG Programme

Name of Course	Academic Year	% Students from Kerala	% Students from other States	% Students from other countries
Civil Engineering	2013-2014	91.4	3.6	5
	2014-2015	95.8	2.8	1.4
	2015-2016	96.9	3.1	Nil
	2016-2017	97.2	2.8	Nil

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services, etc.?

Name of the Competitive Exam	2013-14	2014-15	2015-16	2016-17
GATE	66	60	50	21
CAT		2	1	1
GRE	2	2	4	
IBPS (Inst of Banking Professional Selection)	2			
SSC	3	5		
Common Entrance Examination for Design (CEED, IIT Bombay)	1	1		
TANCET (TamilNadu Common Entrance)	1	2		
NICMAR	1		3	
Railway Recruitment Board (RRB)	2	1		
Kerala Public Service Commission (KPSC)	5			

29. Student progression

Student Progression	2013-14	2014-15	2015-16	2016-17
UG to PG (in %)	45.5	42.85	32.5	14
PG to Ph.D. (%)	3	3.3	-	-
Ph.D. to Post-Doctoral	-	-	-	-
Employed On Campus (%)	15.2	15	50	24
Employed Off Campus (%)	22.1	17.2	17.5	2

30. Details of Infra structural facilities

a) Library

No.	Descriptions	Quantity in Numbers	
1	Books for students circulation(Central Library)	Titles	2809
		Volume	9138
2	Books in the department library	Titles	1268
		Volume	2218
3	Technical Journals (Central Library)	National	78
		e-journals	188
4	Technical magazines subscribed(Central Library)	22	
5	Educational CDs(Central Library)	500	
6	NPTEL Videos(Central Library)	More than 500	

b) Internet facilities for staff & students

No	Items	Quantity
1	Computer with internet facilities	120
2	Bandwidth	100 Mbps
3	Printers	25
4	Scanner	3

c) Class rooms with ICT facility

No.	Description	Number of rooms
1	Class room with Black Board ,White Board &ICT facilities	10

d) Laboratories :UG Programme

No.	Name of the Lab	No.of Students/ Batch	Area in sq.m
1	CAD Lab	38	64.98
2	Concrete Lab	38	151
3	Environmental Engineering Lab	38	111.24
4	Geology Museum	38	20.66
5	Geotechnical Engineering Lab	38	108.34
6	Material Testing Lab	38	187.97
7	Survey Lab	38	65
8	Transportation Engineering Lab	38	200
9	Civil Engineering Workshop	38	75.66

e) Laboratories (PG Programme)

No	Name of the Lab	No.of Students/ Batch	Area in sq.m
1	Structural Dynamics Lab	18	95.99
2	Structural Engineering Lab	18	202

3	Advanced Computational Lab	18	46.74
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31.Number of students receiving financial assistance from College,University, government or other agencies

(i) UG Programme

NUMBER OF STUDENTS WITH SCHOLARSHIP					
Name of the scholarship	2013-14	2014-15	2015-16	2016-17	Total
MCM, Merit Cum Means, from Ministry of Minority Affairs, Central Govt.	46	53	56	49	204
TKM-MCM, Merit Cum Means, Institute Level Scholarship	10	11	15	15	51
EgrantzfromtheGovt. of Kerala, FC Students	25	23	4	6	58
EgrantzfromtheGovt. of Kerala, SEBC Students	52	91	58	64	265
EgrantzfromtheGovt. of Kerala, SC/ST/OEC	44	46	55	62	207
CSS, Central Sector Scholarship,(Central Government), General StudentScholarship	35	31	23	3	92
University Merit	1	1	1	1	4
Fisherman	1	-	-	-	1
Arunachal Pradesh	11	9	8	10	38
Lakshadweep	7	8	4	5	24
IOCL	1	2	2	2	7
Snehapoorvam	0	0	1	2	3
Total	233	275	227	219	

(ii) PG Programme

NUMBER OF STUDENTS WITH SCHOLARSHIP					
Name of Scholarship	2013-14	2014-15	2015-16	2016-17	Total
GATE Scholarship from MHRD	15	15	13	14	57
TEQIP Scholarship	2	3	3	4	12
Egrantz fromtheGovt of	-	-	1	1	2

Kerala, SEBC					
EgrantzfromtheGovt of Kerala, SC/ST/OEC	5	5	5	5	20
EgrantzfromtheGovt. of Kerala, FC Students	-	1	4	3	8
Total	22	24	26	27	

32. Details on student enrichment programmes (speciallectures/workshops/seminar) with external experts (2013-2017)

No	Activity	Type of activity	Date	Main resource person
2013-2014				
1	INCEPTO'13 – 12 th Annual Students' Convention, ISTE Kerala Chapter	Invited talk, seminars, paper presentations, talent search, quiz and other technical events	16-17 Aug. 2013	Dr. P.J.George, Former Director of Technical Education Dr. T. Saboo, Scientist VSSC
2	Inauguration of Civil Engineering Association 2013	Inauguration &Invited talk	29 th Jul.2013	Dr. A. Cini, Assistant Engineer, PWD, Kerala State
3	CIZZLE'13- Inter semester technical quiz competition	Technical quiz	29, Jul.2013	Students of the Department
4	GATEWAY TO IIT	Interactive session with TKMCE Alumni	26 th Sept. 2013	Alumni of TKMCE, Ms.Sahana S.&Mr.Sandeep Vijay
5	Workshop on "Setting out of Buildings"	Workshop	7 th Feb.2014	Faculty of Civil Department. TKMCE
6	Technical Talk on the topic "GIS and its applications in Civil Engg.:"	Technical Talk	15 th Feb. 2014	Dr. Satheesh Gopi, Chief hydrographer, Hydrographic Survey Dept.,Kerala State
7	Technical Talk on "Engineering as a Service	Technical Talk	16 th Feb, 2014	Dr. Santhosh Sathyapal, Deputy Manager, World Bank Project, Jananidhi, Kerala Rural Water Supply & Sanitation Agency, Trivandrum
2014-2015				
8	Inauguration of Civil Engg Association for the year 2014-15	Inauguration &Invited talk	4 th Sept. 2014	Sri. L. Radhakrishnan IAS, Advisor to Chief Minister, Kerala State
9	CIZZLE'14- Inter	Technical Quiz	04 Sept	Students of the

	semester technical quiz competition		2014	Department
10	Talk on “Career opportunities for Civil Engineers”	Career Guidance	18 th Mar. 2015	Dr. Radha Krishnan, Asst. Professor, IIT, Chennai
11	World Environment Day Celebration	Awareness Programme & Planting Trees	5 th June 2015	BhoomithraSena Club members
2015 -2016				
12	World Environment Day Celebrations	Awareness Programme & Planting Trees	5 th Jun 2015	Bhoomithrasena Club members
13	Invited Talk	Biomimicry	27 th Oct 2015	Prof. S K Mohan, IIT Madras
14	Technical Talk	Application of Theoretical Knowledge in Practice	29 th Oct 2015	Er. Pennamma M Chief Engineer, Kerala PWD
15	Invited Talk	Talk on “Self Awareness”	9 th ,Dec 2015	Dr. Devadas Menon,IIT Madras
16	Technical Talk	Performance of Construction Projects in India	10 th ,Dec 2015	Prof. K C Iyer, IIT Delhi
17	Invited Talk	“Smart City :Smart Transportation	10 th ,Dec 2015	Prof. Tom V Mathew,IIT Bombay
18	Technical Talk	Predicting Behavioral Pattern of Equivalent Permeability Coefficient for a Multilayer Geological System Through Analytical Modelling	11 th Dec 2015	Prof. P Bazak, Visiting Professor, NIT Jamshedpur
19	Technical Talk	Making Sense of Plot Scale Processes for Basin Scale Hydrological Modelling	11 th Dec 2015	Prof. Zulkifli Yusop, Universiti Teknologi, Malaysia
20	Technical Discussion	Modern Trends in Construction Technology & Career Opportunities for Civil Engineers	4 th Jan 2016	Er. George Abraham, DGM,L&T Chennai
21	Invited Talk	Talk on “Practical Problems in Civil Engineering”	1 st Jan 2016	Dr. Lalu Mangal, Former Professor TKM College of Engineering

22	Technical Talk	Civil Engineering- An Overview & Prefabricated Construction Practices	1 st Feb 2016	Prof. U C Ahammed Kutty, Structural Consultant Kozhikkode
23	Technical Talk	Modern Surveying Techniques	1 st Feb 2016	Mr. Harikumar, Manager, Reinshaw Metrology Systems Limited, Pune
24	Invited Talk	Challenges faced by Civil Engineering Professionals &Energy & Environmental Concerns in Buildings	8 th Feb 2016	Er. Shreeganesh V Nair LEED :AP &GRIHA Evaluator & Trainer
25	Technical Talk	Mechanical, Electrical & Plumbing	24 th Feb 2016	Mr. Shyam Suran & Prasad, Core Institute of Technology
26	Technical Talk	Bidding & Execution of Works in PWD	7 th April 2016	Er. PK Rajeev Suoperintending Engineer, PWD (Retd.)
2016 – 2017				
27	Technical Talk	Building Information Management (BIM) System and Opportunities for Civil Engineers	17 th Aug 2016	Er. Prem Joseph, Autodesk Solutions Canada
28	Technical Talk	Opportunities for Civil Engineers & International Trends in Structural Engineering	1 st Sep, 2016	Er. Biju Balakrishnan Principal Structural Engineer ADVENT Consulting Engineers, Melbourne Australia
29	Technical Talk	“Is Vastu Scientific”	7 th Oct, 2016	Prof . Nizzar Director, TKM Institute of Mangement
30	Technical Talk	Software for Civil Engineers	18 th Oct, 2016	Mr. Ashish Ranjan Dubey, Bendley Solutions.
31	CIZZLE’ 14- Inter semester technical quiz competition	Technical Quiz	16 th Nov 2016	Students of the Department

32	Technical Talk	Project Management principles	9 th Jan, 2017	E A Abdu, Vice President-Engineering, Skyline Builders
33	Technical Talk	Water Scenario of Kerala	22 nd March 2017	Dr. E J James Former Executive Director, CWRDM

33. Teaching methods adopted to improve student learning:

- Use of multimedia in delivery of lectures
- Dividing the students into small groups and conducting tutorials. Course related questions are set for the students to work, and are given guidance. This enhances critical thinking and the problem solving skills of the students. This also makes them active in learning by involving directly in answering or raising questions, in verbalizing their views, understanding of topics, concepts etc.
- Organizing expert lectures and discussions.
- Well-equipped department library provides assistance for self-learning.
- Organizing study tours, site visits etc. to help the students in supplementing theoretical knowledge with practical exposure.
- Students can access NPTEL video lectures for better understanding of the concepts.
- QEEE classes are conducted to enhance the learning process.
- Civil Engineering Association conducts workshops, seminars and group discussions.
- Technical fests, Conferences etc., are conducted for student enrichment.
- Encouraging peer group learning.
- Remedial classes are arranged for students after regular class hours.
- A two week industrial training is included in the programme to give the students hands on experience.
- Students are evaluated by continuous assessment which is on the basis of the day to day work, periodic tests, assignments and the end semester University examinations.

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

Faculty and students actively participate in the following programmes such as:

- Blood Donation Camp
- Stem Cell Donation Camp
- National Service Scheme(NSS)
- Students of TKM for the Empowerment of People and Society(STEPS)
- Bhoomithrasena Club activities related to protecting the environment
- Anti Drug Campaign
- Anti Ragging Campaign
- Grievance Redressal
- Disaster Mitigation

35. SWOC analysis of the Department and future plans:

Strengths

- Highly creative, experienced and dedicated faculty members
- Faculty adept in handling consultancy projects such as structural design, material property testing, evaluation of structural stability, monitoring of construction works and valuation of buildings

- Faculty members hold important positions in forums such as Senate, Board of Studies, Academic Council, Syllabus revision etc., in the University.
- Faculty members serve as technical experts in various local/government bodies
- Well placed alumni who guide and support the department in various activities
- Legacy of the last 58 years, which has made the institution a highly preferred one in the state of Kerala. The students who join the Civil Engineering Department have high ranks in the engineering entrance examination conducted by Government of Kerala(KEAM)
- A distinct position in academic performance at the University level
- Department library with a good collection of books and journals to enrich the knowledge of the students
- Well equipped laboratory
- Goodwill of the stakeholders
- High faculty retention

Weaknesses

- Low campus placement in core companies
- Less flexibility in incorporating recent advancements in civil engineering field in the curriculum as the scheme and syllabus of the affiliating university is followed
- Less research activities

Opportunities

- Access to various firms/industries to impart hands on training in all functional areas
- To engage in technical consultancy assignments with industries
- To enhance research projects funded by various agencies
- To do collaborative research work with different scientific organizations
- MoUs with industries/Universities for student projects/internships
- Facilities for modern pedagogy and advanced learning support such as NPTEL, QEEE

Challenges

- Equipping students for better placement opportunities
- To ensure the admittance of majority of students in prestigious institutes for post graduate programmes
- Setting high goals and living up to the standards set by the institution, while being confined by the constraints set by the affiliating universities
- To setup specialized research facilities within the department

Future Plans

- Propose innovative technologies for the improvement of teaching learning process
- Increase MoU with industries
- Promote partnership and tie-ups across the globe with other world class Universities and institutions to explore different domains of engineering
- Offer more PG programmes
- To increase the participation in Open Online Courses for advanced learning at zero cost and to acquire new skills and improve their knowledge

**DEPARTMENT OF MECHANICAL ENGINEERING
EVALUATIVE REPORT**

1. Name of the department :**Mechanical Engineering**

2. Year of Establishment :**1958**

3. Names of Programmes / Courses offered:

No	Program	Engineering/Technology
1	UG	B.Tech: Mechanical Engineering
2	UG	B.Tech: Mechanical stream: Production Engineering
3	PG	M.Tech: Industrial Refrigeration and Cryogenic Engineering
4	Ph. D	Mechanical Engineering

4. Names of Interdisciplinary courses and the departments/units involved
UG: Mechanical Engineering (2008 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering
5	Basic Civil Engineering	I&II	Civil Engineering
6	Basic Electrical and Electronics Engineering	I&II	Electrical & Electronics Engineering
7	Basic Communication and Information Engineering	I&II	Electronics & Communication Engineering
8	Engineering Mathematics II	III	Mathematics
9	Mechanics of Solids	III	Civil Engineering
10	Engineering Drawing:-Part B :Civil Engineering Drawing & Estimation	III	Civil Engineering
11	Civil Engineering Laboratory	III	Civil Engineering
12	Engineering Mathematics III	IV	Mathematics
13	Engineering Mathematics IV	V	Mathematics
14	Electrical Technology	V	Electrical & Electronics Engineering
15	Industrial Electronics	V	Electronics & Communication. Engineering
16	Electrical & Electronics Laboratory	V	Electrical & Electronics Engineering

UG: Mechanical Stream: Production Engineering (2008 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics

3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering
5	Basic Civil Engineering	I&II	Civil Engineering
6	Basic Electrical and Electronics Engineering	I&II	Electrical & Electronics Engineering
7	Basic Communication and Information Engineering.	I&II	Electronics & Communication Engineering
8	Engineering Mathematics II	III	Mathematics
9	Mechanics of Solids	III	Civil Engineering
10	Engineering Drawing:-Part B Civil Engineering Drawing & Estimation	III	Civil Engineering
11	Civil Engineering Laboratory	III	Civil Engineering
12	Engineering Mathematics III	IV	Mathematics
13	Engineering Mathematics IV	V	Mathematics
14	Electrical Technology	V	Electrical & Electronics Engineering
15	Industrial Electronics	V	Electronics & Communication Engineering.
16	Electrical & Electronics Laboratory	V	Electrical & Electronics Engineering

UG: Mechanical Engineering (2013 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering
5	Basic Civil Engineering	I&II	Civil Engineering
6	Basic Electrical Engineering	I&II	Electrical & Electronics Engineering
7	Basic Electronics Engineering	I&II	Electronics & Communication Engineering
8	Electrical & Electronics Engineering Workshop	I&II	Electrical & Electronics Engineering
9	Engineering Mathematics II	III	Mathematics
10	Mechanics of Solids	III	Civil Engineering
11	Engineering Drawing:-Part B Civil Engineering Drawing & Estimation	III	Civil Engineering
12	Civil Engineering Laboratory	III	Civil Engineering
13	Engineering Mathematics III	IV	Mathematics
14	Electrical Technology	IV	Electrical & Electronics Engineering

15	Engineering Mathematics IV	V	Mathematics
16	Industrial Electronics	V	Electronics & Communication Engineering
17	Electrical & Electronics Laboratory	V	Electrical & Electronics Engineering

UG: Mechanical stream: Production Engineering(2013 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering
5	Basic Civil Engineering	I&II	Civil Engineering
6	Basic Electrical Engineering	I&II	Electrical & Electronics Engineering
7	Basic Electronics Engineering	I&II	Electronics & Communication Engineering
8	Electrical & Electronics Engineering Workshop	I&II	Electrical & Electronics Engineering
9	Engineering Mathematics II	III	Mathematics
10	Mechanics of Solids	III	Civil Engineering
11	Engineering Drawing:-Part B Civil Engineering Drawing & Estimation	III	Civil Engineering
12	Civil Engineering Laboratory	III	Civil Engineering
13	Engineering Mathematics III	IV	Mathematics
14	Electrical Technology	IV	Electrical & Electronics Engineering
15	Engineering Mathematics IV	V	Mathematics
16	Industrial Electronics	V	Electronics & Communication Engineering
17	Electrical & Electronics Laboratory	V	Electrical & Electronics Engineering

**Kerala Technological University
UG: Mechanical/Production Engineering**

No:	Course	Semester	Department
1	Calculus	I	Mathematics
2	Engineering Physics	I	Physics
3	Basic of Electrical Engineering	I	Electrical & Electronics Engineering
4	Engineering Physics Laboratory	I	Physics
5	Electrical Engineering Workshop	I	Electrical & Electronics Engineering
6	Differential Equations	II	Mathematics
7	Engineering Chemistry	II	Chemistry

8	Basic of Electronics Engineering	II	Electronics and Communication Engineering.
9	Engineering Chemistry Laboratory	II	Chemistry
10	Electronics Engineering Workshop	II	Electronics and Communication Engineering
11	Engineering Mechanics	II	Civil Engineering
12	Civil Engineering Workshop	II	Civil Engineering
13	Basic Civil Engineering	II	Civil Engineering
14	Linear Algebra & Complex Analysis	III	Mathematics
15	Material Testing Laboratory	III&IV	Civil Engineering
16	Probability Distribution, Transforms & Numerical Methods	IV	Mathematics

PG: Mechanical- Industrial Refrigeration& Cryogenic Engineering

2008 Scheme/2013 Scheme (Kerala University) /Kerala Technological University

No:	Course	Semester	Department
1	Mathematics/Applied mathematics	I	Mathematics

5. Annual /semester /choice based credit system (Programmewise):

No	Program	Credit System
1	UG- Mechanical Engineering	Semester based - credit system
2	UG- Mechanical stream Production Engineering	Semester based - credit system
3	PG -Industrial Refrigeration and Cryogenic Engineering	Semester based - credit system

6. Participation of the department in the courses offered by other departments:

2008 Scheme

No:	Course	Semester	Department
1	Engineering Graphics	I&II	All other B.Tech branches
2	Basic Mechanical Engineering	I&II	All other B.Tech branches
3	Engineering Workshop	I&II	All other B.Tech branches
4	Humanities	III	Electrical and Electronics Engineering
5	Hydraulic Machines and Heat Engines	III	Electrical and Electronics Engineering
6	Machine Drawing	III	Chemical Engineering
7	Humanities	IV	Civil, Computer, Chemical, Electronics and Communication Engineering
8	Fluid Mechanics Laboratory	IV	Civil Engineering
9	Industrial Management	V	Chemical Engineering
10	Fluid Mechanics Laboratory	V	Chemical Engineering

11	Industrial Engg& Management	VI	Electrical and Electronics Engineering
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12	Heat Ventilation and Air conditioning	VI	Architecture
13	Industrial Management	VII	Electronics and Communication Engineering

2013 - Scheme

No.	Course	Semester	Department
1	Engineering Graphics	I&II	All other B.Tech Programmes
2	Basic Mechanical Engineering	I&II	All other B.Tech Programmes
3	Engineering Workshop	I&II	All other B.Tech Programmes
4	Humanities	III	Electrical and Electronics, Computer Science Engineering
5	Hydraulic Machines and Heat Engines	III	Electrical and Electronics Engineering
6	Machine Drawing	III	Chemical Engineering
7	Humanities	IV	Civil, Chemical, Electronics and Communication Engineering
8	Fluid Mechanics Laboratory	IV	Civil Engineering
9	Fluid Mechanics Laboratory	V	Chemical Engineering
10	Building Services III HVAC	V	Architecture
11	Engineering Management for Electronics Engineers	V	Electronics and Communication Engineering
12	Principles of Management	IV	Master of Computer Applications

KTU 2015 admission onwards

No	Course	Semester	Department
1	Engineering Graphics	I/II	Electrical and Electronics, Civil Engineering, Computer Science, Chemical , Electronics and Communication Engineering
2	Basics of Mechanical Engineering	I/II	Electrical and Electronics, Civil, Computer Science, Chemical, Electronics and Communication Engineering
3	Basic Mechanical Engineering Workshop	I/II	Electrical and Electronics, Civil , Computer Science, Chemical, Electronics and Communication Engineering
4	Fluid Mechanics & Machines Laboratory	IV	Civil Engineering
5	Principles of Management	I	Master of Computer Applications

7. Courses in collaboration with other universities, industries, foreign institutions, etc.:

Nil

8. Details of courses / programmes discontinued (if any) with reasons : Nil**9. Number of teaching posts:**

No	Teaching post	Sanctioned	Filled
1	Professors	14	14
2	Associate Professors	8	8
3	Assistant Professors	18	18

10. Faculty profile with name, qualification, designation, specialization, (D.Sc./D.Litt. /Ph.D./M.Phil. etc.)

Faculty Data: As on 31-03-2017

No	Name of the faculty member	Highest Qualification	Designation	Specialization	Years of Experience	PhD students guided for last 4 years
1	Prof. P.Mohamed Iqbal	M.Tech	Professor	Thermal Engineering	32	
2	Dr. J. Nazar	Ph.D	Professor	Alternative fuels in IC Engines	31	
3	Dr. Jose Prakash M.	Ph.D	Professor	Heat transfer	30	5
4	Dr.K.K. AbdulRasheed	Ph.D	Professor	Industrial Refrigeration & Cryogenics	30	4
5	Prof. A.S.Saleem	M.Tech	Professor	Materials Handling	29	
6	Prof. S.Thanooja	M.Tech	Professor	Tribology	28	
7	Dr.S.Jose	Ph.D	Professor	Composite Materials, Fracture Mechanics	28	3
8	Dr.M.C.Mohammed Ali	Ph.D	Professor	High Speed Compressible Flows	26	
9	Dr. N. K.Mohammed Sajid	Ph.D	Professor	Industrial Refrigeration & Cryogenics	25	
10	Dr.P.N.Dileep	Ph.D	Professor	Manufacturing Engineering	25	4
11	Dr.H.Thilakan	Ph.D	Professor	Industrial Refrigeration & Cryogenics	25	
12	Dr.C.A.Shajahan	Ph.D	Professor	Industrial Engineering	25	
13	Dr. Mohammed Sadikh	Ph.D	Associate Professor	Industrial Refrigeration & Cryogenics	22	
14	Dr.K.A.Shafi	Ph.D	Professor	Industrial 15Re	22	2

				frigeration 16&Cryo17ge nics		
15	Mr. A.Ashfak	M.Tech	Associate Professor	Tribolo18gy	22	
16	Mr. P.Shajahan	M.Phil	Associate Professor	Economic19s	19	
17	Dr.A.Sadiq	Ph.D	Professor	Manufacturi20 ng Process	18	
18	Dr.M.Nizar Hussain	Ph.D	Associate Professor	21Industrial En22gineering	18	
19	Ms. A. Sheeba	M.Tech	Associate Professor	Ther23mal Engine24ering	17	
20	Mr. M.Muhammed Zakkeer	M.Tech	Associate Professor	Industrial25 Engineering	17	
21	Mr. A.Sudheer	M.Tech	Assistant Professor	Metallurgy & Material Science	17	
22	Dr. Mathew Skaria	Ph.D	Associate Professor	Thermal Engineering	15	
23	Mr. V.Hashim	M.Tech	Associate Professor	Manufacturing Engineering	15	
24	Mr. Aghesh Markose(<i>on QIP Deputation</i>)	M Tech	Assistant Professor	Design of Mechanical System	14	
25	Dr. V.N.Ajukumar	PhD	Assistant Professor	Machine Design	14	
26	Mr. Arun S. Raj(<i>on LWA</i>)	M.Tech	Assistant Professor	Energy System Engineering	12	
27	Ms. Jesna Mohammed	M.Tech	Assistant Professor	Energy Engineering	12	
28	Mr. Syed MuhammedFahd	M.Tech	Assistant Professor	Metallurgy & Material Science	12	
29	Dr. K.E. Reby Roy	Ph.D	Assistant Professor	CFD- Heat transfer	11	4
30	Mr. T.S.Krishnankumar	M.Tech	Assistant Professor	Heat transfer in Nano fluids	11	
31	Mr. Manjith Shukkoor	M.Tech	Assistant Professor	Thermal Engineering	11	
32	Ms. S.L.Resmi	M.Tech	Assistant Professor	Industrial Refrigeration &Cryogenics	11	
33	Mr. Ahamed Vazim K A.	M.Tech	Assistant Professor	Metallurgy & Material Science	10	
34	Mr. Sharos H.	M.Tech	Assistant Professor	Manufacturing Engineering	4	
35	Mr. R.Rakesh Pillai	M.Tech	Assistant Professor	Industrial Refrigeration &Cryogenics	4	
36	Ms. T.A.Jessin	M.Tech	Assistant Professor	Industrial Engineering	4	
37	Dr.Rijo Jacob	Ph.D	Assistant	IndustrialRefri	4	1

	Thomas		Professor	geration 37&Cr38yogenics		
38	Ms. R.Leena	M.Tech	Assistant Professor	Industrial Refrigeration &Cryogenics	4	
39	Dr. Baiju V	Ph.D	Assistant Professor	Industrial Refrigeration &Cryogenics	1	
40	Mr. Rizwan Rasheed	M.Tech	Assistant Professor	Industrial Refrigeration &Cryogenics	1	
41	Mr. Jerin K. Sabu	M.Tech	Assistant Professor (Temporary)	Machine Design	1	
42	Mr. Vaishakh P	M.Tech	Assistant Professor (Temporary)	Thermal Engineering	1	

11. List of senior visiting faculty:Nil

12. Percentage of lectures delivered and practical classes handled (programme wise) by temporary faculty:

Year	Programme	% of classes handled by guest faculty	
		Theory	Practical
2013-14	UG: Mechanical Engineering	0.5	2.93
	UG: Mechanical stream-Production Engineering	3.58	0.0
	PG: Industrial Refrigeration & Cryogenic Engineering	0.0	0.0
2014-15	UG: Mechanical Engineering	2.53	2.29
	UG: Mechanical Stream-Production Engineering	4.38	4.11
	PG: Industrial Refrigeration & Cryogenic Engineering	0.0	0.0
2015-16	UG: Mechanical Engineering	3.98	4.1
	UG: Mechanical Stream-Production Engineering	2.46	2.42
	PG: Industrial Refrigeration & Cryogenic Engineering	0.15	0.0
2016-17	UG: Mechanical Engineering	3.53	2.85
	UG: Mechanical Stream-Production Engineering	2.98	2.5
	PG: Industrial Refrigeration & Cryogenic Engineering	0.0	0.0

13. Student-Teacher Ratio (programme wise):

No	Programmes	Pass out batches
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		2012-13	2013-14	2014-15	2015-16	2016-17
1	UG - Mechanical Engineering	16.65	16.45	16.3	16.4	16.4

2	UG - Mechanical Stream - Production Engineering	8.5	9.45	9.55	9.55	9.55
3	PG - Industrial Refrigeration and Cryogenic Engineering	12.79	13.5	13.5	13.5	13.5

14. Number of academic support staff (technical) and administrative staff; sanctioned and filled

No	Category	Sanctioned	Filled
1	Academic Support Staff(Technical)	45	45
2	Administrative Staff	0	0

15. Qualifications of teaching faculty with DSc/ D.Litt/ Ph.D/ MPhil/ PG:

No	Category	Number of faculty
1	Ph.D.	18
2	M.Tech.	22 (11 undergoing Ph.D)

16. Number of faculty with ongoing projects from a) National b)International funding agencies and grants received:

No:	Faculty Involved	Funding Agency	Amount(in lakhs)
1	Dr. Jose Prakash. M Dr. K. E. Reby Roy	ISRO	9.48
2	Dr. Jose Prakash. M Dr. K. E. Reby Roy Mr.Krishnakumar T.S.	ISRO	9.65
3	Dr. K.A. Shafi Dr. Mathew Skaria Dr. Rijo Jacob Thomas	Department of Atomic Energy	22.33
4	Dr. Jose Prakash. M	ISRO	6.38
5	Dr. K.E.Reby Roy	Kerala State Council for Science Technology & Environment	3.00
6	Ms. Leena. R	CERD	2.00
7	Dr. S.Jose	TEQIP II	1.69
8	Dr. Reby Roy	TEQIP II	1.2
9	Mr. Krishna kumar	TEQIP II	1.35
10	Ms.Leena .R	TEQIP II	0.52
11	Ms. Jesna Mohammed	TEQIP II	0.3
12	Ms. Sheeba A.	TEQIP II	0.5

17. Departmental projects funded by DST-FIST, UGC, DBT, ICSSR etc., and total grants received:

No:	Faculty Involved	Funding Agency	Amount(in lakhs)
1	Dr. Jose Prakash M.	AICTE	16.00
2	Dr. Jose Prakash M. Mr.T.S. Krishnakumar	AICTE	14.50

3	Dr. P.N. Dileep Prof. Hashim. V.	AICTE	10.00
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18. Research Centre/ facility recognized by the University:

- Department is an approved Research Center by University of Kerala and APJ Abdul Kalam Technological University for Ph.D Programme
- Approved QIP center of AICTE for Ph.D Programme

19. Publications: Last Four years (Details enclosed as Annexure):

Number of publications by faculty

No	Publications	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	12	18	8	7	45
2	International Conferences	23	2	21	5	51
3	National Conferences	6	2	-	15	23
4	Books	-	3	4	2	9

Number of publications by students

No	Publications	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	5	5	7	2	19
2	International Conferences	7	9	22	5	43
3	National Conferences	-	2	-	6	8

20. Areas of consultancy and income generated:

No:	Title	Faculty	Amount in lakhs	Lab.
1	i) Numerical studies on regenerative cooling of a semi cryogenic rocket engine ii) Numerical studies on combustion and film cooling in a semi cryogenic rocket engine	Dr. Jose Prakash M. Dr. K.E. Reby Roy	19.13	CFD
2	Combustion Studies on Semicryo Pre-burner	Dr. Jose Prakash M.	6.38	CFD
3	Model fabrication using Rapid Prototyping Machine	Dr. A.Sadiq	0.15	CIM
4	Die making for	Prof.Ahamed	0.05	CIM

	Manufacturing units	Wazzim		
5	Heat treatment process	Prof. J.A. Shurafath Beevi, Prof. V. Hashim	0.025	Production Process

21. Faculty as members in a) National Committees b) International Committees c) Editorial Boards (Details enclosed as Annexure):

All faculty in the department have membership in one or more registered professional bodies such as ISTE, ISME, ISHRAE, Institute of Engineers (India), Energy Conservation Society, Indian Cryogenic Council (ICC), Combustion Institute (India), Indian Society for Heat and Mass Transfer (ISHMT), Association of Food Scientists and Technologists (AFST-India), Aeronautical Society of India and some are reviewers of journals of reputed international journals

22. Student Projects:

a) Percentage of students who have done in-house projects including interdepartmental/ programme:

Year	UG: Mechanical Engineering	UG: Mechanical stream-Production Engineering	PG: Industrial Refrigeration & Cryogenics Engineering
2011-2012	87%	89%	95%
2012-2013	88%	85%	95%
2013-2014	85%	87%	94%
2014-2015	87 %	88%	84%
2015-2016	88%	90%	84%
2016-2017	87%	90%	70%

b) Percentage of students placed for projects in organizations outside the institution i.e. in Research laboratories /Industry/ other agencies:

Year	UG: Mechanical Engineering	UG: Mechanical stream-Production Engineering	PG: Industrial Refrigeration & Cryogenics Engineering
2011-2012	13%	11%	5%
2012-2013	12%	15%	5%
2013-2014	15%	13%	6%
2014-2015	13%	12%	16%*
2015-2016	12%	10%	16%
2016-2017	13%	10%	30%*

*University of Twente, Netherlands, Karlsruhe Institute of Technology, Germany

23. A) Awards/Recognitions received by faculty:

No:	Name of Faculty	Awards/Recognitions
1	Prof. S. Thanooja	Institute Merit Prize from IIT Chennai for M.Tech
2	Dr. Dileep P.N.	First Rank holder in B.Tech Degree in the University of Kerala
3	Dr.K.A.Shafi	Secured special prize for the best paper in the national conference on Refrigeration and Air-conditioning 2009(NCRAC09) held at IIT Chennai
		Secured the best paper award in the international conference on Frontiers in Automobile and Mechanical Engineering (FAME-2010) held at Sathyabama Engineering College, Tamil Nadu
		Secured the best paper award in the national conference on Technology frontiers of mechanical engineering CoMET'12, Jun02, 2012 held at St.Joseph's College of Engineering and Technology, Palai, Kerala
4	Dr.A.Sadiq	Received K. Suryanarain Rau Memorial Senior Student Award for R&D in Smart Technology (for Original Research) from Indian Society for Advancement of Materials and Process Engineering (ISAMPE), in Jun 2009. (Award suggested by IIT Chennai)
		Received Innovative Research Projects Award – 2010 (in Mechanical Engineering Stream) from Indian National Academy of Engineering (INAE) in Dec 2010, for Ph.D Research Work and Best Thesis. (Award suggested by IIT Chennai)
		Special appreciation in the international conference on technology for education (IEEE) for developing a different interactive teaching method 'Flip-class based group quiz' for large University classes. (Dec 2014)
		Patents:
		1. A Power Shifting Device For Regenerative Braking System: (No.1583/CHE/2012, The Patent Office Journal 25/10/2013, Page: 27688)
		2. Ergonomic Pen Stand: (No. 5375/CHE/2013, The Patent Office Journal 06/12/2013, Page 30290)
5	Dr. Nizar Hussain M	Best Student Award for M.Tech from IIT, Chennai
		II Rank in PGDIT from CTS, Govt of Kerala
6	Prof. Sudheer A.	Technical Expert of Techno automotive Engineers Pvt. Ltd., Padappai, Chennai.
		Technical Expert of Wood Empires Consortium Pvt. Ltd., Chadayamangalam, Kollam, Kerala.
7	Dr. Rijo Jacob Thomas	Received 2 times the DST fellowship under 'Young Scientist' category for attending international conference (2009, 2013)

B) Awards/Recognitions received by students:

Name of Student	Recognitions	Awardby/ Event
2012-13		
S. R. Gururaj	Second Consolation prize in the ISTE – Srinivasa Ramanujan Mathematical Competitive Examination 2012 – Engineering Colleges (Student Category) at the National Level	Indian Society for Technical Education, New Delhi on 01/12/2012
2013-14		
S. R. Gururaj	Second prize in the ISTE – Srinivasa Ramanujan Mathematical Competitive Examination, Engineering Colleges (Student Category)	National Level conducted by Indian Society for Technical Education, New Delhi on 25/01/2014
Jerry James Sebastian	First prize in ‘Swarm Robotics’ Competition	College of Engineering, Thiruvananthapuram as part of ‘Drishti, 2K13’, Sep 6-8, 2013
Jerry James Sebastian	First prize in ‘Android Robotics’ Competition	NIT Kozhikode as part of ‘Tathva, 2K13’, Oct 17-20, 2013
Abhijith Thankachan and Abhishek U. B.	Participated in ‘Automobile Workshop’	NIT Kozhikode as part of ‘Tathva 2K14’, Oct 30-Nov 2, 2014
Bimal T. and Shabeer P. T.	Second Prize in MECHATHLON	College of Engineering Thiruvananthapuram as part of ‘Drishti 2K13’, Sep 6-8, 2013
2014- 15		
Darshita Babu	Recognition from Indian Navy <ul style="list-style-type: none"> • Best women trainee of the course • Chief of Naval staff Gold medal • Flag officer Commander in Chief (South) Gold medal • Overall order of merit for Naval orientation course –First place 	
Darshita Babu	Best student award	Tata Consultancy Services
Krishnaraj R., and Sujith Das S	Won the Civil Service Examination	
Darshita Babu, Noufal A., Akhil J., Robin B.	Best Student Project award	Tata Consultancy Services
Jepth S John, Athul Jayan, Anandhu S, Abin B and Abi Johns	Secured first position in the INDO-US Robo League competition 2015	Government Engineering College, Barton Hill on Jan 17-18, 2015
Jepth S John, Athul Jayan, Anandhu S, Abin B and Abi Johns	Cleared zonal round in the INDO-US Robo League competition 2015 – organized by Technophilia systems in association with Robotics and Computer Applications Institute of USA	IIT Mumbai as part of ‘Avrithi 2015’ organized by EESA IIT Mumbai, Mar 28-29, 2015

S. R. Gururaj	Fifth prize in the ISTE – Srinivasa Ramanujan Mathematical Competitive Examination 2014-2015 – Engineering Colleges (Student Category) at the National Level	Indian Society for Technical Education, New Delhi on 25/02/2015
Abhijith Thankachan, Abhijith T A, Imtiaz Ali Moopan, Jishnudas Pazhedath, Jerry James Sebastian	Participated in ‘Vehicle Overhauling’	IIT Chennai, 2015 as part of ‘Shastra 2K15’, Jan 3-6, 2015
Harisankar, Robi Regi, Jishnu A. and Akshay B. J.	Second place in ‘Industrial Automation’	IIT Chennai, 2015 as part of ‘Shastra 2K15’, Jan 3-6, 2015
Jishnu P, Akshay B. J. and Abhishek U. B.	Participated in ‘Autonomous Robotics’	NSS Palakkad as part of ‘Gamaya 2K14’, Sep 19-21, 2014
2015-16		
Abin B, Anandhu S, Abi Johns, Athul J. and Jephin S. John	Secured I position in the National Round of Engineering Excellence Championship 2016 in Line Following Robot event	Conducted by SkillRex Technology held at IIT Bombay, during Aavriti 2016 organized by EESA IIT Bombay on 13 th March 2016.
S. R. Gururaj	Secured All India Rank 393 in Gate 2016 (Mechanical Engineering)	
Mahusiby	Secured All India Rank 423 in Gate 2016 (Mechanical Engineering)	
Vaishakh P R	Won Civil Service Examination	
Rahul Satheesh	Certificate of Merit for Excellent Performance in Automobile Development Internship	NIT Calicut during October 29-01 November 2015 in association with Tathva 2015
Shyam Manoj, Vivek Anil Kumar, Affan T. T	Secured A+ in R-C Aircraft Workshop	HOBBYPEP at NIT Calicut during 30-31 October 2015 in association with Tathva 2015
2016-17		
Project Team	Ranked 32 nd among 420 participants in All India competition for the Design, marketing & fabrication of All Terrain Vehicle	SAE – BAJA Team
Athul M R	District Shuttle Champion	Kollam District Shuttle Championship 2016-17

24. List of eminent academicians and scientists/visitors to the department (During last Four years):

No	Name & Designation of the Faculty/Experts	Name of the Institute/Industry
1	Dr. Khalid Rafi, Post Doctoral Fellow	University of Louisville,USA
2.	Dr.Jinu Unnithan, Post Doctoral Fellow	University of Boston,USA
3.	Sudeep Cherian Kurian, IES,(2008 Alumni)	Indian Engineering Service
4.	Mr. Baiju A.P., Sr.Scientist	LPSC-ISRO, Thiruvananthapuram
5.	Dr. M.S. Shunmugam, Professor	IIT,Chennai
6	Mr. T.D. Kesavaprasad	Intsolvers Technologies Pvt. Ltd., Thiruvananthapuram
7	Dr.Y.ArunRoy	Aerospace& Defense,Defiance TechnologiesLimited, Bangalore
8	Mr. S.Somanath, Director	LPSC-ISRO, Thiruvananthapuram
9	Dr. Luigi Serio, Scientist	CERN, Switzerland
10	Dr. Arend Nijhui	University of Twente, Netherlands
11	Dr. Rajinikumar Ramalingam	KIT, Germany
12	Dr. Muthukumar P	IIT, Guwahati
13	Dr. Jung Kyung Kim	Kookmin University, S.Korea
14	Prof. Kanchan Choudary	IIT, Kharagpur
15	Prof. Sameen A	IIT,.Chennai
16	Prof. S.Kasturirengan	IISc, Bangalore
17	Dr. Ananthkumar	IIS, Thiruvananthapuram
18	Dr. Pradeep Dutta	IISc, Bangalore

25. Seminars/Conferences/Workshops organized & source of funding Faculty Development Programmes/ Conferences:

Title	Funding Agency	Organized By	Date (One week duration)
Soft skill development for quality education	ISTE	Dr.K.A. Shafi Dr. Mohammed Sathikh	Nov.2011
Tools for developing soft skill	TEQIP-II	Dr.K.A. Shafi Dr.N.K.Mohammed Sajid	Jun 2013
CFD & Application	TEQIP-II	Dr.K.E Reby Roy	Aug. 2013
FEM & Application in Engineering	TEQIP-II	Dr. K.E Reby Roy Dr. Mathew Skaria	Oct. 2013
Nanotechnology	TEQIP-II	Prof. Syed Muhammed Fahd	Oct. 2013
Advances in Industrial Management	TEQIP-II	Dr.C.A.Shajahan Prof. Mohammed Zakkeer A	Nov. 2013
CAD for Designers	TEQIP-II	Dr.K.E. Reby Roy	Nov. 2013
Research Methodology for Engineers	TEQIP-II	Dr. Nizar Hussain M Prof. Sudheer A.	Dec. 2013
Micro & Nano scale heat	TEQIP-II	Dr.K.E. Reby Roy	Dec. 2013

transfer			
Computational Methods in Engineering Using MAT lab.	TEQIP-II	Prof.S. Parameswaran, Dr. K.E. Reby Roy	Dec. 2013
Industry Institute Interaction Programme.	Placement cell	Dr.H.Thilakan	Oct 2014
Industrial Automation & Mechatronics	ISTE	Prof. Sayed Alavi, Dr.K.E. Reby Roy	Mar 2015
Advances in Nanotechnology	AICTE	Dr. Ajukumar V.N. , Prof. T.S. Krishnakumar	Mar 2015
Advanced Mechanics of materials	TEQIP-II	Dr. S.Jose, Dr. Ajukumar V.N.	Jun 2015
Combustion theory and Computational Techniques	AICTE	Dr. J. Nazar, Dr. K. E. Reby Roy	Nov. 2015
International Conference on Aerospace and Mechanical Engineering(ICAME'15)	TEQIP II	Dr. M. Jose Prakash	14-16 December 2015
How do I start my Research	TEQIP II	Dr. K. E. Reby Roy	20-27 July 2016
Application of Mathematics in Engineering	AICTE	Dr. K. E. Reby Roy, Prof. Jesna Mohammed	06-13 February 2017
Recent Trends in Utilization of Renewable and Sustainable Energy in Engineering Application	AICTE	Dr.N.K.Mohammed Sajid, Dr. Baiju, Prof. P.Shajahan	23-28 January 2017

26. Student profile programme/ course wise:

(a)

Name of the Course	Pass out batch	Applications received	Selected	Enrolled		Pass percentage
				*M	*F	
UG: Mechanical Engineering	2011 - 2012	Allotted from common rank list prepared by the Entrance commissioner, Govt. of Kerala	125	123	2	56.1 %
	2012 -2013		125	124	1	75%
	2013 -2014		128	128	0	76.4%
	2014- 2015		131	129	2	72%
	2015-2016		130	129	1	60%

*M=Male, *F=Female

(b)

Name of the Course	Pass out batch	Applications received	Selected	Enrolled		Pass percentage
				*M	*F	

UG: Production Engineering	2011 – 2012	Allotted from common rank list prepared by the Entrance commissioner, Govt. of Kerala	33	33	0	52.78 %
	2012 -2013		33	32	1	66.67%
	2013 -2014		34	32	2	58.82%
	2014- 2015		34	33	1	56.0%
	2015-2016		34	33	1	70%

(c)

Name of the Course	Pass out batch	Applications received	Selected	Enrolled		Pass percentage
				*M	*F	
PG: Mechanical -Industrial Refrigeration and Cryogenic Engineering	2011 - 2012	Allotted from common rank list prepared by the Directorate of Technical Education, Government of Kerala	18	18	0	100 %
	2012 -2013		18	18	0	100%
	2013 -2014		18	18	0	100%
	2014- 2015		18	18	0	94%
	2015-2016		18	18	0	83%

27. Diversity of students:

Pass out batch	% Students from same state			% Students from other state			% Students from abroad		
	U.G Mechanical	U.G Prod.	P.G	U.G Mech.	U.G Prod.	P.G	U.G Mech.	U.G Prod.	P.G
2011-12	100	100	100	0	0	0	0	0	0
2012-13	100	100	100	0	0	0	0	0	0
2013-14	100	100	100	0	0	0	0	0	0
2014-15	99.17	100	100	0.83	0	0	0	0	0
2015-16	96.00	100	100	0.80	0	0	3.2	0	0

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services, etc.?

Total number of students cleared competitive examinations (2011 – 2016): 139

Year	Programme	GATE	GRE	CAT	Civil Service	Defense
2011-2012	UG-Mechanical	26				
	UG-Production	12			1	
	PG	-	-	-	-	-
2012-2013	UG-Mechanical	40				
	UG-Production	11				
	PG	-	-	-	-	-

2013-2014	UG-Mechanical	29				1
	UG-Production	3		1	-	
	PG	-	-	-	-	-
2014-2015	UG-Mechanical	4		2		1
	UG-Production	2				
	PG	-	-	-	-	-
2015-2016	UG-Mechanical	4				
	UG-Production	2				
	PG	-				

29. Student Progression:

Progression	Against % enrolled								
	2012-13		2013-14		2014-15		2015-16		
	Mech. Engg.	Prod. Engg.	Mech. Engg.	Prod. Engg.	Mech. Engg.	Prod. Engg.	Mech. Engg.	Prod. Engg.	
UGtoPG	32	33.33	23.43	14.7	0.03	0.03	4.71	6.00	
PGtoPh.D	-	-	-	-	-	-	-	-	
Ph.D toPost-Doctoral	-	-	-	-	-	-	-	-	
Employed	Campus selection	29.6	31.25	22.3	44.27	20.5	34.6	36.67	45.71
	Other than campus recruitment	22.4	28.13	26.4	7.6	18.5	10.6	20.5	5.6
Entrepreneurship/Self-Employment	6.0	8.5	6.2	6.5	3.1	7.8	6.5	3	

30. Details of infrastructural facilities:

a) Library:

Central Library-Mechanical section

No.	Descriptions	Quantity in Numbers	
1	Books for student's circulation	Titles	2725
		Volume	7576
2	Technical Journals	National	7
		International	8
		e-journals	162
3	Technical magazines subscribed.	2	
4	e-books	75	
5	NPTEL Videos.	980	

Department Library

No.	Descriptions	Quantity in Numbers
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1	Books for students circulation	2491
2	Technical Journals (e-journals)	162
3	Educational CD's	14

b) Internet facilities for staff & students:

No.	Description	Quantity in Numbers
1	Computer with internet facilities	22
2	Work stations	54
3	Bandwidth	25Mbps
4	Network facilities for all computers	Available
5	Printers	10
6	Scanner	3
7	Web Camera	5

c) Class rooms with ICT facility:

No.	Descriptions	Number of rooms
1	Class room with ICT facilities	14

d) Laboratories

No	Laboratories	Area(sqm)
1	Fluid Mechanics & Machinery Laboratory	286
2	I C Engine Laboratory	335
3	Thermal Engineering Laboratory	104
4	CAD Laboratory	140
5	Production Process Laboratory	66
6	Production Tooling Laboratory	100
7	Metallurgy Laboratory	72
8	Metrology Laboratory	72
9	CIM Laboratory	82
10	Refrigeration & Cryogenic Engineering Laboratory	176
11	CFD Laboratory	103
12	Nano Technology Laboratory	60
13	Space Technology Laboratory	60
14	Cryogenic Research Laboratory	60

31. Students receiving financial assistance from college, university, government or other agencies:

UG: Mechanical Engineering

Scholarship details	No. of students			
	2012-13	2013-14	2014-15	2015-16
MCM Scholarship from Ministry of Minority Affairs	23	53	69	70
CSS(Central Sector Scholarship) Central Government General Student Scholarship	20	27	26	21
Egrantz, State Government Scholarship for SEBC & FC students	116	66	125	76

Scholarship from SC/ST development office for SC/ST/OEC students	44	44	48	62
University Merit Scholarship	2	0	0	1
TKM-MCM Scholarship	10	10	14	10
Alumni- MCM Scholarship	4	4	4	4

UG: Mechanical Stream-Production Engineering

Scholarship details	No: of students			
	2012-13	2013-14	2014-15	2015-16
MCM Scholarship from Ministry of Minority Affairs	4	7	15	20
CSS(Central Sector Scholarship)Central Government General Student Scholarship	10	16	21	18
Egrantz,State Government Scholarship for SEBC & FC students	26	14	41	77
Scholarship from SC/ST development office for SC/ST/OEC students	12	10	13	22
University Merit Scholarship	1	0	0	0
TKM-MCM Scholarship	4	4	4	4
Alumni- MCM Scholarship	4	4	4	4

PG: Mechanical (Industrial Refrigeration and Cryogenic Engineering)

Scholarship details	No: of students			
	2012-13	2013-14	2014-15	2015-16
Central Government stipend	25	24	24	24
MCM Scholarship from Ministry of Minority Affairs	0	0	4	0
Egrantz, State Government	0	1	4	2
Scholarship from SC/ST	3	4	4	4
TEQIP – II	-	2	2	2

32. Details on student enrichment programmes (special lectures/workshops/seminar) with external experts (During last four years)

Topic	Name & Designation of the Visiting Faculty/Experts	Name of the Institute/Industry
Latest trends in atomic energy	R Suresh Kumar, Head, High Temperature Division	IGCAR, Kalpakkam
Total Quality Management of Indian Industries	Mr. T. K. Sreekumar, General Manager (Rtd.)	KEL Kundara, Kerala.
A Lecture on Propulsion	Mr. Baiju A.P.	Sr. Scientist, LPSC, ISRO
New Product	Mr. Irfan Haneef	Skillveri Private Ltd.,

Development		Chennai
Interaction with Alumnus	Mr. Deepu Mathew John, Research Scholar, IIT Chennai	IIT, Chennai
Electronic Fuel Injection Systems in IC Engines	Prof. Shijo Thomas, Assistant Professor	NIT, Calicut.
CERN-The organisation and its facilities, research and development activities, the large Hadron Collider and the perspective for the future	L Serio, Technology Department, CERN	Geneva, Switzerland
The Winding Road from Super Conducting Wire to High Current Cables	A. Nijhuis, Faculty of science and Technology	University of Twente, Netherlands
Surface –tension – driven Cell Migration: A New Mechanism of Force Generation for Cell Propulsion	Jung Kyung Kim,	Department of Mechanical Engineering, Kookmin, South Korea University, Seoul, Korea
Solid Propulsion system, End to End Capability	S. S. Vinod	VSSC, ISRO, Trivandrum
Structural Technologies for Space Systems	A. K. Asraf, Head Structural Dynamics Division	ISRO, Trivandrum
Metal Hydride based Thermal Management Systems	P. Muthukumar, Professor	IIT Guwahati
Advanced Manufacturing	Dr. Khalid Rafi, Post Doctoral Fellow	University of Louisville, USA
Bio Mechanics	Dr. Jinu Unnithan, Post Doctoral Fellow	University of Boston, USA
IES Examination Preparation	Er. Sudeep Cherian Kurian, IES (Alumni-2008 batch)	Indian Engineering Service
Scope for higher studies in IITs	Mr. Deepu Mathew John, Research Scholar, IIT Chennai	IIT Chennai
Geometric Dimensioning and Tolerancing	Dr. M.S. Shunmugam,	IIT Chennai
Product Development in Industries	Mr. T.D. Kesavaprasad	Intsolvers Technologies Pvt. Ltd., Thiruvananthapuram
Aircraft System Development Process	Dr. Y. Arun Roy, Business	Aerospace & Defense, Defiance

		Technologies Limited, Bangalore
Technical and life skill	Dr. Kanchan Chowdhury	Head of Cryogenic Engineering Center,IIT Kharagpur
Inaugural Speech of Mechanical Engg:Association	Mr. Baiju A.P.	Sr. Scientist, LPSC, ISRO

33. Teaching methods adopted to improve student learning:

- Periodic tests and assignments.
- Organizing tutorial sessions and group discussions to improve the critical thinking and problem solving skills.
- Student's seminars on latest developments in technology and organizing expert lectures.
- Utilizing multimedia in delivery of lectures.
- Organizing study tours, industrial visits, implant training etc., to enhance the students in supplementing theoretical knowledge with practical experience.
- Arrangement of remedial classes for weak students after regular class hours.
- Well-equipped library to provide assistance for self-learning.
- Students can access NPTEL videos, QEEE lectures for better understanding of the subjects.
- Organizing Technical fests, Conferences etc., for sharing and updating the knowledge level.

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

- Participation in NSS Unit such as Blood donation camp, District level Personality camp, Awareness programme etc.
- PUNARJANI project, restoring hospital equipments and furniture in Government district hospital Kollam.
- SADGAMAYA, seven day NSS special camp at Govt. LP school, Karikode.
- Various social activities like stem cell donation, renovation of District hospital facilities etc., are conducted under STEPS, a student service organization of the college.
- Conducted anti-drug campaign and clean Kollam drive programme.
- Anti-ragging awareness programme conducted by ANTI RAGGING CELL.
- NSS TKMCE along with UNAI, STEPS and IEDC visited the laksham veedu colony.
- NSS Volunteers of TKMCE celebrated World Environmental Day under the theme "Water Conservation and Afforestation".
- NSS Volunteers renovated classrooms and premises of Harijjans .A .L. P. School under school empowerment programme.
- The NSS TKMCE and UNAI TKMCE units joined hands with local Government Organizations to fight against the dengue causing filthy conditions of a colony at Pallithottam, Kollam.
- As a part of the International Yoga Day, NSS TKMCE conducted a yoga session.

35. SWOC analysis of the department and Future Plans:

Strengths

- Dedicated faculty with commitment to quality, moral values and work ethics

- Forty percent of faculty have Ph. D and presently twenty eight percent are pursuing
- High faculty retention rate at all levels
- Well-equipped laboratories
- Collaborative research with reputed institutions within India and abroad and involvement in consultancy projects
- Externally funded research projects utilizing the available facilities
- Department is an approved QIP center by AICTE for Ph. D programme
- Approved Research Center of University of Kerala for Ph. D programme
- Good interaction with alumni all over the world
- The students joining the department have high rank in the KEAM entrance examination conducted by Government of Kerala
- Strong bond and good interaction between faculty and students
- Well-structured mentoring system to guide, support and motivate each student

Weaknesses

- Projects from international funding agency has to be attracted
- Limitations in designing the curriculum to meet industry/market expectations
- Collaboration with foreign Universities for knowledge sharing has to be improved
- Students are focusing on placement after UG rather than going for higher studies

Opportunities

- Access to various industries and research organizations to impart hands on training in all functional areas
- Collaborative research work with different scientific organizations
- Scope of FDPs, Workshops, Seminars for updating the knowledge
- Domain specific expertise amongst department faculty

Challenges

- Attract more core companies for campus recruitment.
- Equip students to cope-up with the changing job requirements
- Motivate and equip students to take-up real life problems and train them to do self-learning

Future Plans

- Motivate students to do more research based projects
- Start more post graduate programmes in various specialization
- Enhance tie-up with industries (MoU) and other Universities
- Establish a full-fledged research and development cell which will strengthen research culture and meet demand from industries/research organizations

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
EVALUATIVE REPORT**

1. Name of Department:Electrical and Electronics Engineering

2. Year of Establishment: 1958

3. Name of programme /Courses offered

No	Engineering/Technology			Yearof Starting
1	UG	B.Tech	Electrical and Electronics	1958
2	PG	M. Tech	Industrial Instrumentation & Control	2009
			Power System	2016

4. Names of Interdisciplinary courses and the departments/units involved

UG: Electrical and Electronics Engineering (2008 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering
5	Basic Civil Engineering	I&II	Civil Engineering
6	Basic Mechanical Engineering	I&II	Mechanical Engineering
7	Basic Communication and Information Engineering	I&II	Electronics & Communication Engineering.
8	Engineering Graphics	I&II	Mechanical Engineering
9	Engineering Workshop	I&II	Mechanical Engineering
10	Engineering Mathematics II	III	Mathematics
11	Humanities	III	Mechanical Engineering
12	Hydraulic Machines and heat Engines	III	Mechanical Engineering
13	Hydraulic Machines and heat Engines Laboratory	III	.
14	Engineering Mathematics III	IV	Mathematics
15	Engineering Mathematics IV	V	Mathematics
16	Industrial Engineering and management	VI	Mechanical Engineering

UG: Electrical and Electronics Engineering (2013 Scheme)

No	Course	Semester	Department
1	Engineering Mathematics I	I&II	Mathematics
2	Engineering Physics	I&II	Physics
3	Engineering Chemistry	I&II	Chemistry
4	Engineering Mechanics	I&II	Civil Engineering

5	Basic Civil Engineering	I&II	Civil Engineering
6	Engineering Graphics	1&II	Mechanical Engineering
7	Basic Electronics Engineering	I&II	Electronics & Communication Engineering
8	Basic Mechanical Engineering	1&II	Mechanical Engineering
9	Mechanical Engineering Workshop	1&II	Mechanical Engineering
10	Engineering Mathematics II	III	Mathematics
11	Humanities	III	Mechanical Engineering
12	Hydraulic Machines and heat Engines	III	Mechanical Engineering
13	Hydraulic Machines and heat Engines Lab	III	Mechanical Engineering
14	Engineering Mathematics III	IV	Mathematics
15	Engineering Mathematics IV	V	Mathematics
16	Industrial engineering & Management	VI	Mechanical Engineering

UG: Electrical and Electronics Engineering (KTU)

No:	Course	Semester	Department
1	Calculus	I	Mathematics
2	Engineering Chemistry	I	Chemistry
3	Engineering Chemistry lab	I	Chemistry
4	Basics of Mechanical Engineering	I	Mechanical Engineering
5	Mechanical Engineering Workshop	I	Mechanical Engineering
6	Engineering Mechanics	I	Civil Engineering
7	Differential Equations	II	Mathematics
8	Engineering Physics Laboratory	II	Physics
9	Engineering Physics	II	Physics
10	Basic of Electronics Engineering	II	Electronics and Communication Engineering.
11	Electronics Engineering Workshop	II	Electronics and Communication Engineering.
12	Civil Engineering Workshop	II	Civil Engineering
13	Basic Civil Engineering	II	Civil Engineering
14	Engineering Graphics	II	Mechanical Engineering
15	Linear Algebra & complex Analysis	III	Mathematics
16	Business Economics	IV	Mechanical Engineering
17	Probability distribution & Transformers numerical methods	IV	Mathematics

5. Annual/semester/choice based credit system (programmewise)

No	Engineering/Technology		Annual/Semester Credit
1	B.Tech	Electrical&ElectronicsEngineering	Semester based Credit
2	M.Tech	Industrial Instrumentation &&	Semester based Credit
3	M.Tech	Power System	Semester based Credit

6. Participation of the department in the courses offered by other departments Kerala University -2008 scheme

No	Subjects	Semester/Course	Departments
1	Basic Electrical and Electronics Engineering	I&II/B.Tech	Civil, Mechanical, Production, Chemical, Electronics & Communication and Computer Science Engineering
2	Electrical Technology	V/B.Tech	Mechanical Engineering, Production Engineering
3	Electrical Technology	IV/B.Tech	Chemical Engineering
4	Electrical Laboratory	V/B.Tech	Mechanical Engineering, Production Engineering.
5	Electrical Laboratory	IV/B.Tech	Chemical Engineering
6	Building Services	VI/B.Arch	Architecture

Kerala University -2013 scheme

No	Subjects	Sem.	Departments
1	Basic Electrical Engineering	I&II/B.Tech	Civil, Mechanical, Production, Chemical, and Electronics &
2	Basic Electrical and	I&II/B.Tech	Computer Engineering
3	Electrical Technology	IV/B.Tech	Mechanical, Production and Chemical Engineering
4	Electrical Laboratory	V/B.Tech	Mechanical Engineering, Production Engineering.
5	Building Services	V/B.Arch	Architecture Engineering

Kerala Technological University -2015 Scheme

No	Subjects	Semester/Course	Departments
1	Basics of Electrical Engineering	S1 /B.Tech	Mechanical Engineering, Production Engineering.

	Electrical Engineering workshop		Mechanical Engineering, Production Engineering.
2	Basics of Electrical Engineering	S2/B.Tech	Civil Engineering, Chemical, Electronics & Communication and Computer Science Engineering
	Electrical Engineering workshop		Civil Engineering, Chemical, Electronics & Communication and Computer Science Engineering

7. Courses in collaboration with other universities, industries, foreign institutions, etc:

Nil

8. Details of courses /programmes discontinued (if any) with reasons: Nil

9. Number of teaching posts (Sanctioned, Filled)

No	Teaching post	Sanctioned	Filled
1	Professors	4	4
2	Associate Professors	5	5
3	Assistant Professors	15	15

10. Faculty profile with name, qualification, designation, specialization, (D.Sc./D.Litt./Ph.D./M.Phil. etc.,)

No	Name	Qualification	Designation	Specialization	Years of Experience
1	Dr. C. Usha Devi Amma	Ph.D	Professor	Instrumentation	27
2	Dr. K. BijunaKunju	Ph.D	Professor	Power system & Energetics	24
3	Prof. V. Gayathri	M.Tech	Professor	Guidance & Navigational Control	31
4	Dr. T.P ImthiasAhamed	Ph.D	Professor	Power Systems	28
5	Prof. Asha Ravindranath	M.Tech	Associate Professor	Control System	25
6	Prof. M. Deepthi	M.Tech	Associate Professor	Power System	25
7	Prof. S. Shyba	M.Tech	Associate Professor	Computer Science & Data Processing	21
8	Prof. T. N. Shanavas	M.Tech	Associate Professor	Power System	18
9	Prof. Baiju R. Naina	B.Tech	Assistant Professor	Power System	20
10	Dr. R. Sheeba	Ph.D	Associate Professor	Power System	20
11	Prof. Sindhu D. Pillai	M.E	Assistant Professor	Micro Electronics	15
12	Prof. Sabeena Beevi (on QIP deputation)	M.Tech	Assistant Professor	Image Processing	15
13	Prof. Sunitha Beevi. K.	M.Tech	Assistant Professor	Computer & Information Technology	12

14	Prof. Fathima M. Kasim	M.Tech	Assistant Professor	Control System	7
15	Prof. Shanir P.P.	M.Tech	Assistant Professor	Instrumentation and Control	7
16	Prof. Mohammed Mansoor O.(on QIP deputation)	M.Tech	Assistant Professor	Power System	7
17	Prof. Shahina T. N.	M.Tech	Assistant Professor	Electrical Machines	7
18	Prof. Sofiya S.	M.Tech	Assistant Professor	Power Electronics	5
19	Prof. Resmi.R.	M.Tech	Assistant Professor	Industrial Instrumentation& Control	5
20	Prof. Shaleena Manafuddin	M.Tech	Assistant Professor	VLSI&EmbededS systems	4
21	Prof. Arun L	M.Tech	Assistant Professor	Power system	10 months
22	Prof. MohammedaliShafeeq ue	M.Tech	Assistant Professor	Power Electronics	10 months
23	Thasneem A	M.Tech	Assistant Professor	Power System	10 months
24	Prof. Koshy Thomas	M.Tech	AssistantProfessor (Temporary)	Control System	2
25	Prof. Krishna Chandran	M.Tech	AssistantProfessor (Temporary)	Signal Processing	2
26	Prof. Sreerag K. S.	M.Tech	AssistantProfessor (Temporary)	Industrial Drives and Control	2

11. List of senior visiting faculty: Nil

12. Percentage of lectures delivered and practical classes handled (programme wise) by temporary faculty: 2.06

13. Student-Teacher Ratio (programme wise)

No.	Academic Year	Student Strength				Faculty Strength	Student Teacher Ratio
		II Year	III Year	IV Year	Total		
1	2011-12	122	123	114	359	26	13.80
2	2012-13	108	122	125	355	26	13.65
3	2013-14	121	109	120	350	24	14.58
4	2014-15	125	118	109	352	24	14.66
5	2015-16	138	122	118	378	24	15.75
6	2016-17	141	139	119	399	24	16.63

14. Number of academic support staff (technical)and administrative staff; sanctioned and filled. Number of academic support staff (technical) :

Description	2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	S	F	S	F	S	F	S	F	S	F	S	F	S	F

Technical staff	15	15	16	15	16	16	17	16	17	17	16	16	16	16
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S- Sanctioned; F- Filled

15. Qualifications of teaching faculty with DSc/D.Litt/Ph.D/MPhil/PG.

Qualification	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Ph. D	2	2	2	2	4	4
M.Tech	19	20	19	21	20	20
B. Tech	5	4	3	1	0	0

16. Number of faculty with on going projects from a) National b) International funding agencies and grants received: Nil

17. Departmental projects funded by DST-FIST; UGC, DBT, ICSSR, etc. and total grants received

Year	Title of the project	Funding agency	Name of Faculty	Amount Sanctioned (Rs.)
2011	Modernization of Power System Laboratory	MODROBS	Prof. N. Prathapachandran	11,50,000
2016	Indigenous Development of insulation oil for transformers	TEQIP	Dr. K. BijunaKunju	150,000
2016	Ultrasound assisted needle steering robot and stiffness assessment of soft-tissue mimicking phantoms	TEQIP	Dr. C UshaDeviAmmam	135,000
2016	Design and implementation of Solar Fed inverter with minimum Harmonics	TEQIP	Dr. Sheeba R	145,000

18. Research Centre / facility recognized by the University:

The department has testing centre sponsored by Department of Industries and Commerce, Government of Kerala

19. Publications: Last Four years (Details given in Annexure)

Number of publications by Faculty (2011- 2015)

	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	2	5	6	5	4	4	26
2	International Conferences	10	7	1	13	6	2	39

3	National Conferences	1	3	0	1			5
4	Books				2	1		3

Number of publications by Students (2011- 2015)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals							
2	International Conferences				9		4	13
3	National Conferences							

20. Areas of consultancy and income generated :Nil

21. Faculty as members in a) National committees b) International Committees c) Editorial boards (Details given in Annexure)

Many faculty are members in various professional organisations such as ISTE, IEEE, IE, PES, IET, Energy Conservation Society etc.

Dr. C.Ushadevi Amma is invited teacher in Indian Academy of Science. She is also working as a mentor/expert for summer/winter camps at Indian National Science Academy in DST INSPIRE programme.

Dr.T.P. ImthiasAhamed is working as a reviewer in IEEE Transactions on Smart Grid and International Journal of Electrical Machines &Power Components.

Dr.K.BijunaKunju is the Chairman of PES,IEEE Kerala Section.

Prof. SunithaBeevi K is WIE Kerala Session Chair.

22. Student projects

a) Percentage of students who have done in-house projects including interdepartmental/ programme

b) Percentage of students placed for projects in organizations outside the institution i.e. in Research laboratories /Industry/other agencies

No	Year	Total Projects	In-house Project	Project in Industry
1	2016-17	24	24(100%)	0
2	2015-16	23	21(91.3%)	2(8.69%)
3	2014-15	22	20(90.92%)	2(9.09%)
4	2013-14	26	14(53.84%)	12(46.15%)
5	2012-13	30	28(93.33%)	3(10%)
6	2011-12	25	15(60%)	10(40%)

23.Awards / Recognitions received by faculty and students

1. Students

Name of Student	Achievement	Year
Er. Arun L.	Secured 12th rank in the IES	2010-2011

	Examination	
Er. Jasmine E.	Secured 53 rd rank in the GATE Examination 2013	2011-2012
Bastin Sebastian	Secured 90 th rank in Civil Service Examination	2012
Er. Abhijith V. S.	Secured 6 th rank in CSIR-JRF NET examination	2012-2013
MidhunM., ArunV., AbhijitV.S.	Secured rank less than 1000 in GATE 2013	
Agnivesh Rao P.	Qualified CAT 2015 with score 96%.	2013-2014
JithuKrishna P.	Secured rank less than 1000 in GATE 2014.	
Mahesh P. J.	Participated in “The IEEE R10 Student Young Professional and Women in engineering congress , Sri Lanka	Jul, 2015
BhavikaMagalanadan	Secured 169 th Rank in Civil Service Examinations	2015
Asif Noushad, HariKrishnaR., Adarsh G.	Selected for National Robotic Championship, IIT Mumbai	Apr, 2015
Rineesh V.P.	Member Kerala University Foot ballTeam. Winner Kerala University North Zone Inter Collegiate Foot ball Championship. Participation in South Inter University Championship 2014	2013,2014,2015
ShefiahShershah	Member Kerala university Women Tennis team(3 consecutive years) Runner up in Kerala University Inter Collegiate Championship	2013,2014,2015
KarishmaPreman, Devi Vidya K.S., Anjitha K.N., SanjanaSajeev, ShyamSekhar	Second Prize for the Event Contraption in THATWA 15 at NIT, Kozhikode	2015-16
Afsal K.	Second Prize for the event Chemo Propello in THATWA 15 at NIT, Kozhikode	2015-2016
Mahesh PJ , MinhasNaheem, RazakMubafer	Conference paper accepted in IEEE GHTC- 2016, October-13-16th conference at washington DC	2016(paper accepted)
Mahesh PJ , MinhasNaheem	Automated water pumping system-(IEEESIGHT Project)	2016
Arun V Jose, Akhil S, Abingearge, Amina& Denny Varughese	Development and Testing of an environment friendly insulating Oil for transformers, IEEE PEDES, 2016 ,	2016(paper Accpeted)
Mahesh PJ	Research Paper selected for student paper presentation Contest at GHTC-2016	2016(paper contest)
AsifNoushad	Evaroom(Event Management) Selected as the Student Representative of IEEE Kerala Section	2016(student Startup)
AjalBabu K	TECHJOY online food services	2016(Student Startup)
Abrar Abdullah	Attended National Adventure Camp at ABVIMAS, Narkanda. He was one	2016-17

	among twenty students selected from all over Kerala.He was certified with 'A' grade in basic mountaineering Course.	
SebinSabu and SriChitra	Selected to JpGu-AGU Joint Meeting to present their research works. Sebinwas awarded with AGU Travel Grant	2016-17
SebinSabu and Abhiram D	Research works selected to present at the Impact of Science Conference hosted by Royal MetereologicalSociety ,UK.	2016-17
Hashir,Riswin,Jaseel,Jibin and Vishnu P	Won the regional level competition based on Industrial Automation and Scada and was selected for National Level Competition at IIT-BHU,they participated in the national levels on 26th Feb 2017.	2016-17
Harikrishnan R	Selected as the Chairman of IEEE TKM SB	2016-17
Nirmal Kumar , Rocky S Kdamabnattu, YazinHarisThangal	Bagged second prize , TCS young Innovator award (cash Prize Rs 25000)at KETCON 2017	2016-17
Deepika	Paper presentation at KETCON	2016-17
Vishak won NSS BEST VOLUNTEER and held as NSS voluntary secretary	Won NSS BEST VOLUNTEER and held as NSS voluntary secretary	2016-17
Ashish Mathew, Gautam H Gautam Krishna B, Lulu Fathima, Rahul S, Arun V Vishnu O G, Libin John Thomas	Qualified for GATE Examination	2016-17

2) Faculty

Name of Faculty	Achievement/ awards	Year
Dr. BijunaKunju	Outstanding Power Engineer Award 2012 by Power and Energy Society	2012
	Outstanding volunteer of the year 2014,IEEE Kerala section	2014
Prof. Sunitha Beevi	IEEE – MGA (Outstanding branch Councillor)	2014
Prof. SunithaBeevi	Promotional Manager IEEEWIE in Asia Pacific Reagion	2016

24. List of eminent academicians and Scientists / visitors

Company name	Name of Expert	Designation	Date of lecture
IISC,Bangalore	Prof. P.S. NagendraRao	Department of Electrical and Electronics	17-10-11
NITTTR,Bhopal	Prof. Joshua Ernest	Professor and Head, Department of Electrical	01-12-11

		and Electronics	
KEL,Kundara	Er.Shajahan	Engineer	11-06-13
TELK,Angamali	Er.P.T.Ushakumari	Assistant General Manager	30-08-13
Electrical Inspectorate	Er. Jayakrishnan K.A	Electrical Inspector.	2-12-13
Electrical Inspectorate	Er.K.K.Vasu	Retd. Electrical Inspector	2-12-13
ANERT	Dr.M.Jayaraju	Director, ANERT	3-12-13
Fire and Rescue service	Mr. Harikumar	Fire and Rescue service Officer	4-12-13
IISC,Bangalore	Dr.R.M. Vasu, IISC,Bangalore.	Department of Electrical and Electronics	18-11-13
IIT, Delhi	Dr.K.R.Rajagopal,	Department of Electrical&Electronics	4-08-14
Department of Computational Biology&BiInformatics, Kerala University	Dr.AchuthSankarS.Nair	Professor&Head	4-08-14
IT Chief Habib Bank AG Zurich	Er.ShyamS.Pillai	Senior Executive Vice President	6-08-14
NIT, Trichy	Dr.K.Sundhareswaran	Professor, Department of EEE	28-04-14
Abudhabi National Oil Company	Er.ShyamS.Pillai	Senior Electrical Engineer	18-03-15
ETAP Automation, Chennai	Er. Janasekharan	Technical Expert	7-10-2016 & 8-10-2016
Nayak Power system, Mumbai	Chaithanya	Technical Expert PSCAD	5-10-2016 & 6-10-2016
KSEB, Pattom	Biju SS	Assistant Executive Engineer	8-10-2016
KSEB,Kollam	Er. Shaji Peter	Deputy Chief Engineer	5-10-2016

25. Seminars/Conferences/Workshops organized & the source of funding

a) National, b) International

No	Programme	Funding Agency	Organizing Faculty	N/I*	Duration
2011-12					
1	FDP on Simulation and Testing of Power System Components.	AICTE	Dr.K.BijunaKunju	N	17/10/2011-22/10/2011
2	International Conference on Smart Grid Technologies India-ISGT-INDIA-2011	IEEE Kerala Section and IEEE TKMCE	Dr.K.BijunaKunju, Prof. SunithaBeevi K., Prof. Shyba. S.	I	1/12/2011-3/12/2011

3	Paradigms, Perspective- New Trends in Research	ISTE, Kerala chapter.	Prof. Sheeba R. &Dr. B. Premlet	N	31/10/2011 -5/11/2011
2012-13					
1	A one day Workshop on Control System Tool Box	TEQIP II	Prof. Baiju R. Naina	N	05/07/2013
2	Three day Workshop on Training for Software Packages in Power System	TEQIP II	Prof. Deepthi M.	N	23/08/2013 – 26/08/2013
3	Expert Seminar on Fuzzy Systems in Electrical Engineering Applications	TEQIP II	Dr. Sheeba R.	N	28-09-2013
4	FDP on Robotics , MEMS & Nanotechnology	TEQIP II	Prof. Shyba S.	N	21/10/2013 - 25/10/2013
5	Staff development programme on “ Lab Management ”	TEQIP II	Prof. Noushad A.	N	07/10/2013 – 11/10/2013
6	FDP on Advanced Digital Signal Processing	TEQIP II	Prof. Sunitha Beevi K.	N	18/11/2013 – 22/11/2013
7	One day workshop on “Engineering Applications Of Labview Software	TEQIP II	Prof. Resmi R.	N	27/08/2013
8	Staff development programme on “ Lab Management ”	TEQIP II	Prof. Noushad A.	N	07/10/2013 – 11/10/2013
2013-14					

1	FDP conducted on Application of Soft Computing Techniques in Power System	TEQIP II	Dr. Sheeba R.	N	28/04/2014 – 03/05/2014
2	FDP on Recent Advances in Power Electronics & Industrial Drives	TEQIP II	Prof.SindhuD.Pillai	N	16/12/2013 - 20/12/2013
3	One day workshop on PLC and SCADA Training.	TEQIP II	Prof. Shahina T.N.	N	06/12/2013
2014-15					
1	International Conference on Emerging trends in Electrical Engineering	TEQIP II	Prof.V.Gayathri&Prof. Deepthi M.	I	4-08-14 to 6-08-14
2015-16					
1	FDP on Power system Operations	TEQIP II	Prof. A .Noushad& Prof Mohammed Mansoor	N	23-11-15to 28-11-15
2	Contemporary Developments of Optimization Techniques and its application	TEQIP II	Prof. Sheeba R	N	18-05-2016 To 23-05-2016
2016-17					
3	Building more skills for a better life and skills	TEQIP II	Dr. C UshadeviAmma& Prof SunithaBeevi K	N	31-05-16 To 04-06-2016
4	Simulation and Realisation of Power systems in Steady state and Transient state	TEQIP II	Dr. K BijunaKunju	N	05-10-16 To 08-10-2016

*N=National, I=International

26. Student profile programme/ course wise

B.Tech/Year	Applications received	Selected	Enrolled		Pass percentage
			*M	*F	
2016-17	Allotted from common rank list prepared by the Entrance commissioner, Government of Kerala	128	91	37	
2015-16		118	80	38	68.64%
2014-15		109	70	39	71.55%
2013-14		120	73	47	74.16%
2012-13		119	75	44	78.99%

2011-12	115	81	34	61.7%
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*M=Male *F=Female

27. Diversity of Students

Programme	Academic Year	%of students from the state	%ofstudents from other States	%of students from abroad
B. Tech	2016-17	99.24	0.76	0
	2015-16	100	0	0
	2014-15	99.1	0.9	0
	2013-14	96.27	3.33	0.8
	2012-13	96.64	3.36	0.8
	2011-12	96.7	3.3	0

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil Services, Defense Services, etc.?

No	Exam	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
1	GATE	4	3	10	6	4	9	8
2	CSIR-JRF-NET			1				
3	Civil Service			1		1		1

29. Student progression

Student progression	Year					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
UG to PG	3(2.61%)	10(8.4%)	6(5%)	4(3.67%)	7(5.93%)	
PG to Ph.D.						
Ph.D.to Post-Doctoral						
Employed– Campus selection	65(56.5%)	53(44.53%)	39(32.5%)	46(42.2%)	54(46.61%)	45(37.81%)
Other than campus recruitment	4(3.45%)	2(1.68%)	1(1%)	4(3.67%)	5(4.24%)	
Entrepreneurship/Self-employment					1	

30. Details of Infrastructural facilities

a) Library

No.	Descriptions	Quantity in Numbers	
1	Books for students circulation	Titles	2654
		Volume	7880
2	Department library for reference	Titles	875
		Volume	1450

b) Internet facilities for Staff & Students

No	Description	Quantity in Nos
1	Computers with internet facility	66
2	Bandwidth	100 Mbps
3	Network Facility for all Computers	Available

c) Class rooms with ICT Facility

No	Description	No of Rooms
1	Class room with white board, projectors, Internet Facility and ICT	9

f) Laboratories

Laboratory description in the curriculum	Space (Sq. ft)	Number of students
Electrical Workshop	1380	35
Electrical Machines Laboratory I	6400	35
Electrical Machines Laboratory II	6400	35
Electrical & Electronics Laboratory	1050	35
Electronics Circuits Laboratory	1350	35
Digital Circuits Laboratory	1350	35
Measurements & Instrumentation Laboratory	1680	35
Power Electronics Laboratory	1100	35
Software Laboratory	900	35
Microprocessor Laboratory	720	35
Power System Laboratory	2250	35
Systems & Control Laboratory	1050	35
Seminar Hall	1487.2	140

31. Number of students receiving financial assistance from college, university government or other agencies

Scholarship details	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
MCM(Merit Cum Means)	19	25	41	55	56	39	235
Egrantz SEBC and FC (SC/ST DevolementOffice-Kerala)	107	92	61	115	73	77	525
CSS(Central Sector Scholarship)	23	21	21	22	19	9	115
CHMKS(C H MuhammedKoya Scholarship)	3	3	4	0			10

TKM MCM Scholarship	7	9	7	7			30
SC/ST/OEC	39	41	38	36	52	64	270
Lakshadweep Scholarship	9	11	13	13	8	5	59
Fishermen's scholarship	2	3	3	2	2	1	13
Indian Oil Corporation Scholarship	0	0	1	1	1	1	4

32. Details on student enrichment programmes (special lectures/workshops/seminar) with external experts

IEEE ACTIVITY				
No	Activity	Conducted by	Date	Main resource person/Guest
2011-2012				
1	Student Transition and Elevation Programme (STEP)	IEEE Students Branch TKMCE & GOLD	10-07-2011	MiniS. Ullanatt, SystemEngineer, CUSAT.
2	Teacher-In-Service-Program	IEEE Kerala Section, and IEEE Student Branch of TKMCE	16-07-2011	Hon. Minister for Labour and Rehabilitation, Kerala, Sri. Shibu Baby John
3	Student Transition and Elevation Programme (STEP)	TKMCE in association with IEEE	10-07-2011	Er.P.MSasi, Additional Director, C-DAC, THIRUVANANTHAPURAM
4	Talk on Global Energy Crisis	IEEE SB	17-11-2011	Dr. M. Jayaraju, PES Staff Advisor
5	ISGT 2011	PES, Kerala Section, SB, ISGT India	1-12-2011 to 3-12-2011	Dr. Rahul Tongia, C-STEP, Bengaluru
6	IMPRESSIONZ	WIE affinity group of IEEE Student Branch	12-02-2012	Six students under the guidance of teachers

7	TALK ON “WORKING OF A SUBSTATION”	WIE affinity group of IEEE Student Branch	13-02-2012	Er. Udaya Varma, Deputy Chief Engineer, Transmission, Kannur.
2012-2013				
1	Techno- managerial symposium, workshop on Swarm Robotics, LABVIEW,PIC Microcontrollers	IEEE SB	12-01-2013 &13-01-2013	Mr. Freeman Murray,Startup Village Kochi.
2013-2014				
1	PES WiP (Women in Power)	IEEE PES Kerala Chapter	15-11-2013	Mrs. MelihaSelak, Vice President, PES Chapters
2	CRENTO- Creating Engineers for Tomorrow	IEEE Students Branch TKMCE	27-07-2013, 16- 08-2013 and 26- 10-2013	Mrs. MelihaSelak, Vice President, PES Chapters
3	ESPIRITO' 13- LINK CAMP	IEEE Kerala Section	28-08-2013	Mr.Srinivasan R. Chairman, IEEE Kerala Section
4	Sessions on the 'Benefits of IEEE' and 'Mars Orbiter Mission'.	IEEE SB of TKMCE, Kollam	7-02- 2014	IEEE StudentsBranch of TKMCE
2014-2015				
1	BE-TECH SESSION 1- Technical talk on “Bionics”	IEEE students branch TKMCE	17 -06-2014	IEEE Students Branch of TKMCE
2	BE-TECH SESSION 2 The concept of prototyping	IEEE Students Branch TKMCE	22- 7- 2014	IEEE StudentsBranch of TKMCE
3	CRENTO-'14 Creating Engineers for Tomorrow	IEEE Students Branch TKMCE	4-9- 2014	IEEE StudentsBranch of TKMCE
4	IEEE INVENIRE	IEEE Students Branch TKMCE	20-21 Sept. 2014	Mr. AchuthSankar& Mr.Gopakumar, MGA Vice Chair Information IEE

5	PES QUIZ PHASE-I (COLLEGE LEVEL)	IEEE Students Branch TKMCE	6-10-2014	Prof. Mohammed Kasim, Professor, TKM Institute of Technology, Kollam
6	PES QUIZ HUB LEVEL	IEEE ,PES Kerala Section	22-11-2014	Prof. Mohammed Kasim, Professor, TKM Institute of Technology, Kollam
7	INDUSTRIAL VISIT	IEEE Students Branch TKMCE	7-2- 2015	KSEB Engineers
2015-16				
1	Balasastra Congress	EEE Dept, KSSP and IEEE SB	16-01-16&17-01-16	From KSSP
2	Reservoir	IEEESB	06-02-16& 07-02-16	IEEE SB TKMCE
3	Open Source Week	IEEESB	02-04-2016	IEEESB TKMCE
4	PES QUIZ (All Kerala Level)	IEEE SB TKMCE& IEEE PES Kerala Section	6-02-2016	Dr. B Premlet. Professor, TKMCE, Kollam
2016-17				
1	ENTREGA '16 48 HR HARDWARE HACKTHON	WIE Affinity group of IEEE SB	1-10-2016& 2-10-2016	IEEE WIE Kerala Section Chair
2	Complete Electrification Project on EdamulackalPanc hayath	IEEE SB, KSEB & EEE Dept. TKMCE	16-02 -2017	IEEE SB, KSEB & EEE Dept. TKMCE
ELECTRICAL & ELECTRONICS ENGINEERING ASSOCIATION ACTIVITY 2012-13				
No	Activity	Resource person		
1	Electrical and Electronics Association Inauguration, Talk on "Efficient use of renewable energy for future India" Followed by panel discussion	Prof. V. K. Damodaran, Director General, INGCORE & Dr. Sivadasan		
2	"APARACTIZ"-Workshop on soft skill personality development and job orientation workshop	Mrs. Sindhu, Trainer, Soft Skill Development, Thiruvananthapuram		

3	Power Electronics Workshop	Prof. P. Prathapachandran Pillai, Professor, Department of EEE., TKMCE
4	Workshop on SEQUEL & MATLAB	Prof. Sheeba R., Associate Professor, Department of EEE, TKMCE
2013-14		
1	Project Proposal for installing solar power cell in college, "NEXT STEP" interactive session	Mr. Sandeep V. S., Faculty "FACE" Academy
2	Workshop on PCB Fabrication	Mr. Fasalur Rahman P. & Mr. Raees T, IEEE Gold Members
3	"Railway Locomotives" interactive session	Mr. C. V. Vyshag IEEE member
4	Design & Fabrication of Amplifier Circuits-Two day workshop	Mr. Anwar Sadath IEEE Member
2014-15		
1	Electrical Engineering Association Inauguration	Er. Oommen P. Joshua, General Manager, TELK, Angamali
2	ROBOTRIKS	Prof. Sunil Paul, Asst Professor, MIT Cochin
2015-16		
1	Electrical Engineering Inauguration	Er. Vipin Sanakar, Deputy C E KSEB
2	Talk on Electrical safety and Design Engineering practices	Er. K Rajan Rtd Electrical Inspector, Electrical Inspectorate of Kerala
3	Workshop on MATLAB	Mr. Abhijit VS, IIT, Bombay
2016-17		
1	Electrical Engineering Association Inauguration	Dr. Achuth Sankar S Nair, Head Bioinformatics Group, University of Kerala
2	Talk on Practical Design aspects of Transformers	Smt. Lissy Augustine, Senior Manager TELK Angamaly.

33. Teaching methods adopted to improve student learning

- Use of multimedia in delivery of lectures
- Dividing the students into small groups and conducting tutorials for these groups. This enhances the critical thinking and the problem solving skills of the students
- Organizing expert lectures and discussions.
- Well -equipped Central Library and Department library provide assistance for self – learning.
- Organizing study tours to help the students in supplementing theoretical knowledge with practical experience.
- Students can access NPTEL video lectures for better understanding of the concepts.
- TEQIP-QEEE classes are conducted to enhance the learning process
- Electrical Engineering Association activities such as workshops, seminars and group discussions are also conducted.
- Technical fests, Conferences etc., are conducted.
- Encouraging peer group learning for slow learners.
- Remedial classes are arranged for weak students after regular class hours.

- A two week industrial training is included in the programme to give the students industrial experience.

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

The students of the department actively participate in the following social welfare activities

- National Service Scheme
- Blood Donation Camp
- Free medical camp
- Alumini Association
- Energy Management Cell
- Environment Management Cell
- Student Welfare Committee
- Anti Ragging Cell
- Anti Drug Cell
- Availability of Counselling Facility
- Availability of First-Aid Unit Club
- Bhoomithrasena Club
- SPIC MACAY
- STEPS (Students of TKM for the Empowerment of People and Society)

35. SWOCanalysis of the department and Future plans

Strengths

- The programme is conducted in a muchdisciplined manner so as to contribute to the student community in quantity and quality.
- The curriculum is developed with a strong professionaloutlook.
- Teaching-learning processis well organized.
- Higher ranked students of the entrance examination opt for this programme because of its credibility and employability.
- Qualified faculty with specialization in all domains of Electrical Engineering.
- Adequate & qualified technical staff is available for supporting the students in the laboratories during office hours and beyond.
- Majority of the top ranks in the University examinations are bagged by students of the department.
- Good placement records are the evidences of the strength of the programme.
- Well placed alumni and good alumni interaction, helps the students in identifying their challenges and opportunities.
- Many graduates of the programmedo pursue higher education at premier institutions including IISc, IITs, IIMs and even abroad.
- Good extra & co-curricular activitieson and off the campus help thestudents in developing their organizing skills and moulding their character.
- Excellent professional society (IEEE) activities of the faculty students and staff have bestowed many accolades.

Weaknesses

- Improvement in teacher student ratio is expected for better outcomes.
- More Faculty publication is expected in refereed journals.
- Research funding from AICTE,DST etc. is below the expected level.
- Need more PG programmes.

Opportunities

- New PG and PhD programmes are to be initiated.
- Research activities / publications need to be enhanced.
- Need to acquire more funding from AICTE,DST etc.
- Interactions with outside world/Industry need to be increased.
- Signing of MoU with Industries can improve the performance of the department.

Challenges

- Setting up a research centre is a long term goal.
- Improving written and oral communication skills of the students.
- Making the students employable for R & D organizations is a major challenge.
- Achieving a pass percentage between 90 and 95.

Future Plans

- To groom the students for entrepreneurship.
- Increase MoU with industry.
- Set up an independent research centre in key areas of electrical engineering.

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
EVALUATIVE REPORT**

1. Name of the department: Electronics and Communication Engineering

2. Year of Establishment : 1977

3. Names of Programmes / Courses offered

No.	Engineering Technology			Year of starting
1	UG	B. Tech	Electronics and Communication	1977
2	PG	M. Tech	Communication Systems	2012

4. Names of Interdisciplinary courses and the departments/units involved

Syllabus with Kerala University (Both 2008/2013 schemes)

No	Subjects	Semester/Programme	Department Involved
1	Engineering Mathematics - I	I & II / B Tech	Mathematics
2	Engineering Physics	I & II / B Tech	Physics
3	Engineering Chemistry	I & II / B Tech	Chemistry
4	Engineering Graphics	I & II / B Tech	Mechanical Engineering
5	Engineering Mechanics	I & II / B Tech	Civil Engineering
6	Basic Civil Engineering	I & II / B Tech	Civil Engineering
7	Basic Mechanical Engineering	I & II / B Tech	Mechanical Engineering
9	Engineering Workshops	I & II / B Tech	Mechanical Engineering
10	Engineering Mathematics II	III / B Tech	Mathematics
11	Engineering Mathematics III - Probability & Random Processes	IV / B Tech	Mathematics
12	Humanities	IV / B Tech	Mechanical Engineering
13	Engineering Mathematics IV - Complex Analysis & Linear Algebra	V / B Tech	Mathematics
14	Engineering Management for Electronics Engineers	V / B Tech	Mechanical Engineering
15	Industrial Management	VII / B Tech	Mechanical Engineering
16	Linear Algebra	I / M Tech	Mathematics

Syllabus with Kerala Technological University

No	Subjects	Semester	Department Involved
1	Calculus	I	Mathematics
2	Engineering Chemistry	I	Chemistry
3	Engineering Mechanics	I	Civil Engineering
5	Basics of Civil Engineering	I	Civil Engineering
6	Engineering Chemistry Lab	I	Chemistry
7	Civil Engineering Workshop	I	Civil Engineering
8	Differential Equations	II	Mathematics
9	Engineering Physics	II	Physics
10	Engineering Graphics	II	Mechanical Engineering
11	Basics of Mechanical Engineering	II	Mechanical Engineering
12	Basics of Electrical Engineering	II	Electrical and Electronics Engineering
13	Engineering Physics Lab	II	Physics
14	Mechanical Engineering Workshop	II	Mechanical Engineering
15	Linear Algebra & Complex Analysis	III	Mathematics
16	Business Economics	III	Mechanical Engineering
17	Probability distributions, Random Processes and Numerical Methods	IV	Mathematics

5. Annual/ semester/ choice based credit system (programmewise)

No	Engineering/ Technology			Annual/ semester / choice based credit system
1.	UG	B. Tech	Electronics and Communication	Semester Based Credit System
2.	PG	M. Tech	Communication Systems	Semester Based Credit System

6. Participation of the department in the courses offered by other departments

Kerala University Syllabus

No	Subjects	Semester/ Scheme	Department
1.	Basic Communication and Information Engineering	I & II / 2008	All other B. Tech batches
2	Basic Electronics Engineering	I & II / 2013	Civil, Mechanical , Production, Electrical, Chemical Engineering
3.	Electronic Circuits / Electronics Devices and Circuits	III /2008 / 2013	Computer Science and Engineering
4.	Electronic Circuits Laboratory	III /2008 / 2013	Computer Science and Engineering
5.	Industrial Electronics	V/2008 / 2013	Mechanical Engineering

			Production Engineering
6.	Signals and Systems	VI/2013	Computer Science and Engineering
7.	Introduction to Digital Systems	I / 2011	MCA
8.	Digital Systems	I / 2015	MCA
9.	Microprocessor and Interfacing	I / 2015	MCA
10.	Microprocessor Laboratory	I / 2015	MCA
11.	Computer Organization	II / 2011 /2015	MCA

Syllabus with KTU

No	Subjects	Semester/ Scheme	Department
1	Basics of Electronics Engineering	I/ 2015	Civil, Computer Science and Engineering
2	Electronics Engineering Workshop	I/ 2015	Civil, Computer Science and Engineering
3	Basics of Electronics Engineering	I/ 2015	Mechanical, Production, Electrical and Electronics Engineering
4	Electronics Engineering Workshop	I/ 2015	Mechanical, Production, Electrical and Electronics Engineering
5	Electronic Devices and Circuits	III/2016	Computer Science and Engineering
6	Electronic Circuits Lab	III/2016	Computer Science and Engineering
7	Digital Fundamentals	I/2016	MCA
8	Computer Organization and Architecture	II/2016	MCA

7. Courses in collaboration with other universities, industries, foreign institutions, etc.:
Nil

8. Details of courses/programmes discontinued (if any) with reasons: Nil

9. Number of Teaching posts

No	Teaching post	Sanctioned	Filled
1	Professors	6	6
2	Associate Professors	6	6
3	Assistant Professors	5	5

10. Faculty profile with name, qualification, designation, specialization, (D.Sc./D.Litt./Ph.D./M.Phil.etc.,)

No	Name	Qualification	Designation	Specialization	Years of Experience	Students guided for the last 4 years
1	Dr. Unni C.	Ph.D	Professor	Nano Electronic Materials	32	6
2	Prof. Sreekumari Amma P.	M.Tech	Professor	Communication Systems and High Frequency Technology	32	
3	Prof. HeeraKarunakaran	M.Tech	Professor	Communication Systems and High Frequency Technology	31	
4	Dr.K. Gopakumar	Ph.D	Professor (HoD)	Chaos in Circuits	30	8
5	Dr. Sheeba O.	Ph.D	Professor	Biomedical Image Processing	27	7
6	Dr.T. A. Shahul Hameed	Ph.D	Professor	Microelectronics and VLSI Design	26	6
7	Prof. AbidHussain M.	M.Tech	Associate Professor	Applied Electronics & Instrumentation	24	
8	Prof. Shabeer S.	M.Tech	Associate Professor	Biomedical Engineering	19	
9	Prof. Najia A.	M.E	Associate Professor	Power Electronics and Drives	19	
10	Prof. Sajeena A.	M.Tech	Assistant Professor	Computer and Information Technology	13	
11	Prof. J. DhoulathBeegum	M.E	Associate Professor	Applied Electronics	18	
12	Prof. Reshna S.	M.E	Associate Professor	Applied Electronics	18	
13	Prof. AnuAssis	M.Tech	Assistant Professor	Microelectronics and VLSI Design	15	
14	Prof. Nishanth N.	M.E	Assistant Professor	Telecommunication	13	
15	Prof. PreethaBasu	M.Tech	Associate Professor	Digital Electronics	18	
16	Prof. Ajitha S. S.	M.Tech	Assistant Professor	Industrial Instrumentation and control	8	
17	Dr. Nissan Kunju	Ph.D	Assistant Professor	Mechatronics	1	

18	Prof. Deepthi Felix	M.Tech	Assistant Professor (Adjunct)	VLSI DESIGN & Embedded Systems	1	
19	Prof. Farsana F J	M.Tech	Assistant Professor (Adjunct)	VLSI DESIGN & Adjunct Embedded Systems	1	
20	Prof. Zareena Jamaluddin	M.Tech	Assistant Professor (Adjunct)	Digital Communication	1	
21	Prof. Amina N.	M.Tech	Assistant Professor (Adjunct)	Optoelectronics and Communication Systems	1	
22	Prof. Rubayya R.S.	M.Tech	Assistant Professor (Adjunct)	Signal processing	1	
23	Prof. Mahesh Shankar	M.Tech	Assistant Professor (Adjunct)	Signal Processing	1	
24	Prof. Ansa Shermin	M.Tech	Assistant Professor (Adjunct)	Communication Systems	1	

11. List of senior visiting faculty

No	Faculty name	Designation
1.	Mrs. Priya Sivakumar	Manager, Broadcasting Business Unit, TATA Elxsi

12. Percentage of lectures delivered and practical classes handled (programme wise) by temporary faculty

Year	Percentage of classes handled by temporary faculty
2011-2012	13.4
2012-2013	17
2013-2014	13.9
2014-2015	5.2
2015-2016	12.7
2016-2017	29.32

13. Student-Teacher Ratio (Programme wise)

Year	Student – Teacher ratio	
	UG	PG
2011-2012	14.67	NA
2012-2013	16.5	17
2013-2014	15.57	17
2014-2015	19.2	11.3
2015-2016	20.47	8.75

2016-2017	19.29	12
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14. Number of academic support staff (technical) and administrative staff; sanctioned and filled

Supporting Staff	Sanctioned	Filled
Academic support staff	6	6
Administrative staff	1	1

15. Qualifications of teaching faculty with DSc/D.Litt/Ph.D/MPhil/PG.

Qualification	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
UG	2	1	0	0	0	0
PG	13	13	12	12	13	12
Ph.D	2	3	5	5	4	5

16. Number of faculty with ongoing projects from a) National b) International funding agencies and grants received. : Nil

17. Departmental projects funded by DST-FIST, UGC, DBT, ICSSR, etc., and total grants received

No	Year	Name of Faculty	Funding Agency	Consultancy amount (in rupees)
1	2011-12	Prof. Helen Mascreeen	AICTE	7,25,000
2	2012-13	Dr. Unni C.	AICTE	5,05,000
3	2013-14	Dr. T. A. Shahul Hameed	AICTE	13,00,000
4	2016-17	Prof. Nishanth N	APJ Abdul Kalam Technological University	85,000
5	2016-17	Prof. Nishanth	TEQIP	80,000
6	2016-17	Prof. Nishanth	TEQIP	1,01,000
7	2016-17	Dr. Nissan Kunju	TEQIP	1,05,000
8	2016-17	Dr. Nissan Kunju	TEQIP	46,000

18. Research Centre/facility recognized by the University:

Research Center approval procedure under process with Kerala University.

19. Publications: Last Four years (Details given in Annexure)

Number of publications by Faculty (2011- upto March 2017)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	5	3	13	7	2	2	32
2	International Conferences	4	3	2	5	13	21	54
3	National Conferences	1	1	0	2	2	2	8

4	Books	2			2			4
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Number of publications by Students (2011- upto March 2017)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Referred Journals							
2	International Conferences				12	1	16	29
3	National Conferences							

20.Areas of consultancy and income generated:Nil

21. Faculty as members in, National committees b) International Committees c) Editorial Boards

- Majority of faculty members are Fellow/Life members of various societies like IEEE, ISTE, IETE, IE etc.
- Professors in the department are members in Board of Studies of M.Tech, B.Tech and M.Sc in Kerala University
- Faculty members take part in the revision of scheme and syllabus of M.Tech and B.Tech.
- Dr. C. Unni and Prof. Sreekumariamma P. are the members of the Curriculum Committee members of Electronics & Communication Engineering of APJ Abdul Kalam Technological University.
- Dr. Sheeba O. is the reviewer of AMSE Journal, France.
- Dr. K. Gopakumar is the reviewer of Journal of Circuits, Systems and Computers, World Scientific Publishers, Singapore.

❖ (Details given in Annexure)

22. Student project

- a) **Percentage of students who have done in-house projects including inter-departmental programme**
- b) **Percentage of students placed for projects in organizations outside the institution i.e., in Research laboratories/ Industry/ other agencies**

Year	In- House(in %)	Outside institution (%)
2008-12	94	6
2009-13	87	13
2010-14	100	0
2011-15	86	14
2012-16	94.6	5.4
2013-17	94.3	5.7

**23. Awards/ Recognitions received by faculty and students
(Details given in Annexure)**

Faculty	Award	Awarded by
Dr. Sheeba O.	Best Paper Award	AMSE International Association, France, Conference held at EGYPT- 2008
Dr. Sheeba O.	Best Paper Award	Institution of Engineers India 2009
Dr. Sheeba O.	Best Paper Award	International Association, France- Conference held at Trivandrum 2009

Students	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Curricular		8	15	11	7	1
Co-Curricular	3	1	12	4	10	5

**24. List of eminent academicians and scientists/ visitors to the department
a. International, b. National**

No	Date	Name of the Event	Name and Designation of Resource Persons
1	21/08/2014 to 23/08/2014	International Conference on Signal and Speech Processing (ICSSP14)	Dr.Kunal N. Chaudhary, Department of Electrical Engineering, Indian Institute of Science, Bangalore.
			Dr.S.R.M. Prasanna, Professor, Department of Electronics & Electrical Engineering, IIT Guwahati
			Dr. Peri Bahaskara Rao, Professor, Speech & Vision Laboratory, International Institute of Information Technology, Hyderabad
			Dr. Manjunath V. Joshi, Dhirubai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat
			Dr. Hemant A Patil, Dhirubai Ambani Institute of Information and Communication Technology, Gujarat
			Dr. Ganapati Panda, Professor, School of Electrical Sciences Indian Institute of Technology , Bhubaneswar
2	4.11.13 to 8.11.13	FDP on Soft Computing	Dr. Elilzebeth Sherly, Professor, IIITMK, Kerala
3	25/03/2011	Seminar on Role of IPR in Technical	Dr. V. Balagangadharan, Scientist, VSSC

		Education	
4	22/8/2011 to 27/8/2011	FDP on Embedded Systems	Mr. Biju S. Project Manager, TATA ELXSI, Technopark, Trivandrum
			Mr. Anil Nambiar, Chief Manager, VI Microsystems, Chennai
5	20/8/2012 to 25/8/2012	FDP on Recent Trends in Electronic Product Design	Dr. Baiu M.R., Professor, CET, Trivandrum
6	18/06/2013 to 22/06/2013	FDP on VLSI Design	Dr. Ramasubramanya Komaragiri, Associate Professor, NIT, Calicut.
			Mr. Damodara M.S., Product Manager, CoreEL, Technologies India Pvt.Ltd., Bangalore
			Mr. Vidyasagar M.K. Zonal, Manager, CoreEL, Technologies India Pvt.Ltd., Bangalore.
			Mr. Gopakumar G., Design Engineer, CDAC, Trivandrum
7	4/11/2013 to 8/11/2013	FDP on Soft Computing	Dr. Vinod Chandra S.S, Director, Computer Centre, University of Kerala
			Dr. Elizabeth Sherly, Professor, IITMK, Kerala
			Dr. Deepak Mishra, Assistant Professor, Dept of Avionics, IISST, Trivandrum
8	26/11/2013 to 1/12/2013	FDP on RF Design using AWR Design Environment	Mr. Dharmendra, AWR System, Bangalore
			Kene Jacob, AWR Systems, Bangalore
9	25/11/2013 to 27/11/2013	Workshop on Nano Electronic Materials	Dr. Ajayaghosh, Scientist, NIIST, Thiruvananthapuram
			Dr. M.M. Shajumon, IISER, Thiruvananthapuram
			Dr. K. G. Gopchandran, Associate Professor, Optoelectronics Department, University of Kerala
10	5/09/2013 to 7/09/2013	Workshops on Industrial Electronics Production & Application	Mr. Nirmal, KEL, Kundara, Kollam.
			Mr. Ajith Gopi, Technical Officer ANERT
11	18/06/2013 to 24/06/2013	FDP on Challenges in Semiconductor Technology	Dr. Ramasubramanya Komaragiri, Associate Professor, NIT, Calicut
			Mr. Vidyasagar & M.K. Zonal Manager, CoreEL Technologies, India Pvt.Ltd., Bangalore

12	15/7/2013 to 25/7/13	FDP on Advanced Communication Systems	Dr. V. Unnikrishnan Nair, Former Professor, University of Kerala
			Mr. Rajan George, DGM, Airport Authority of India, Trivandrum
			Dr. M. Sasikumar, Professor, Marian Engineering College
			Dr. Somanathan Nair, Principal, SHM College, Kadakkal
			Dr. Samuel Varghese, NEST, R&D Division, Ernakulam
			Dr. Suresh Nair, Vice President, NEST, Kochi
13	04/03/2014 to 06/03/2014	Workshop on Engineering Applications of Matlab	Dr. Rajesh Joseph Abraham, IIST, Trivandrum
			Dr. Deepak Misra, IIST, Trivandrum
			Dr. N. Neelakandan, Adi Sankara Institute of Technology
14	05/06/2014 to 10/06/2014	FDP on Advanced Digital Signal Processing	Dr. Rominus Valsalam, Associate Director & Head Department of Control & Instrumentation CDAC
			Nithin George, Asso. Professor, IIT Gandhinagar
15	06/06/2014	Expert Lecture on Statistical Signal Processing	Dr. Sameer, Associate Professor, NIT, Kozhikode
16	17/03/2015 to 19/03/2015	Seminar on Wireless Communication	Dr. P. Radhakrishnan, Deputy Director VSSC (Retd.)
			Mr. Kannan M, JTO RTTC, BSNL, Trivandrum
			Mr. Priya Sivakumar, Manager, Broadcasting Business Unit, TATA Elxsi
	15/06/16 to 21/06/16	Biomedical Instrumentation and Image Processing	Dr. Bipin Thomas Varghese, Professor Clinical Oncology, RCC, Trivandrum Dr. B Priestly Shan Principal, Royal College of Engineering, Thrissur. Dr. Arun Anirudhan, Scientist D SCTIMST
	21/07/16 to 27/07/16	Recent Trends in Biomedical Signal and Image Processing	Dr. Ajish K Abraham Department of Electronics AIISH Mysore
17	08/09/2016 to 10/09/2016	International Conference on Signal and Speech Processing	Dr. Samuel N Mathew (Executive Director, National Institute of Speech and Hearing (NISH), Trivandrum)

		g (ICSSP16)	Dr. Prabir Kumar Biswas, Professor and Head, Dept. of Electronic and Electrical Communication Engg. IIT Kharagpur.
			Dr. Asim Banarjee, Professor, Dhirubai Ambani Institute of Information and Communication Technology
			Dr. Kishore Kumar T, Associate Professor, Dept. of ECE, NIT, Warangal
			Dr. Soma Biswas, Assistant Professor, IISc, Bangalore
			Dr. Sibi Raj B Pillai, Associate Professor, Dept. of Electrical Engineering, IIT Bombay
			Dr. Deepak Padmanabhan, Faculty, Centre for Data Science and Scalable Analytics, The Queen's University of Belfast, UK
18	26/09/2016 to 30/09/2016	FDP on Research Topics in VLSI Devices. Circuits and Signal Processing	Dr. Sheikh Rafi Ahmed, Associate Professor. IIT Kharagpur.
			Dr. Nithin V George, Assistant Professor, IIT Gandhinagar

25. Seminars/ Conferences/ Workshops organized & the source of funding

a) International

No	Date	Name of the Event	Co ordinators	Funding
1	21/08/14 to 23/08/14	International Conference on Signal and Speech Processing (ICSSP14)	Dr. K. Gopakumar	TEQIP – Phase II
2	08/09/16 to 10/09/16	International Conference on Signal and Speech Processing (ICSSP16)	Dr. Sheeba O	TEQIP – Phase II

b) National

No	Date	Name of the Event	Co ordinators	Funding
1	25/03/11	Role of IPR in Technical Education	Dr. C. Unni	PIC-Kerala, KSCSTE
2	6/6/11 to 11/6/11	Workshop on Image Processing Using Matlab	Prof. Reshna S.	Department of ECE, TKMCE
3	22/8/11 to 27/8/11	FDP on Embedded Systems	Prof. K. Gopakumar	Department of ECE, TKMCE
4	23/7/12 to 28/7/12	FDP on Virtual Instruments	Prof. T. A. Shahul Hameed	Department of ECE, TKMCE
5	20/8/12 to 25/8/12	Workshop on Recent Trends in Electronic product design	Prof. Sajeena A.	Department of ECE, TKMCE

6	18/06/13to22/06/13	FDP on VLSI Design	Prof. Anu Assis Prof. Preetha Basu	TEQIP – Phase II
	25/6/13 to 27/6/13	Workshop on Repair and Maintenance of Computer Hardware	Prof. Reshna S	TEQIP – Phase II
	23/8/13 to 26/8/13	Workshop on Maintenance and Repair of Electronic equipments	Prof. Sajeena A. Mr Biju P	TEQIP – Phase II
7	4/11/13to8/11/13	FDP on Soft Computing	Prof. Abid Hussain M.	TEQIP – Phase II
8	26/11/13to1/12/13	FDP on RF Design Using AWR Design Environment	Prof. Sreekumari Amma P.	TEQIP – Phase II
9	25/11/13to27/11/13	Workshop on Nano Electronic Materials	Dr.C. Unni	TEQIP – Phase II
10	5/09/13to7/09/13	Workshops on Industrial Electronics Production & Application.	Prof. Najia A. Prof. Ajitha S. S.	TEQIP – Phase II
11	10/12/13to11/12/13	Workshop on Technology Clinic Laptop and mobile	Dr. S. Suresh Babu Mr. Biju P.	TEQIP – Phase II
12	26/10/13	Workshop on Educational Leadership and Capacity	Dr. S Suresh Babu	TEQIP – Phase II
13	10/12/13	Workshop on Mathematical Tool for Electronics Engineering	Prof. Sreekumari Amma P.	TEQIP – Phase II
14	18/06/13to24/06/13	Workshop on Repair & Maintenance of Computer Hardware	Prof. Reshna S.	TEQIP – Phase II
15	18/06/14to24/06/14	FDP on Challenges in Semiconductor Technology	Prof. T. A. Shahul Hameed Prof. Preetha Basu	TEQIP – Phase II
16	15/7/14to 25/7/14	FDP on Advanced Communication Systems	Prof. Gopakumar K.	TEQIP – Phase II
17	02/12/13 to 06/12/13	Workshop on Soft Skill Development	Prof. Reshna S. Prof. Sajeena A.	TEQIP – Phase II
19	04/03/14to06/03/2014	Workshop on Engineering applications of Matlab	Dr. Sheeba O. Prof. Reshna S. Prof. Nishanth N.	TEQIP – Phase II
20	05/06/14 to 10/06/14	FDP on Advanced Digital Signal Processing	Prof. Gopakumar K.	TEQIP – Phase II

21	06/06/14	Expert Lecture on Statistical Signal Processing	Prof. Heera Karunakaran	TEQIP – Phase II
23	17/03/15 to 19/03/15	Seminar on Wireless Communication	Dr. Sheeba O. Prof. Sajeena A.	TEQIP – Phase II
24	21/03/15 to 22/03/15	Workshop on Simulation of Wireless Networks using NS-2	Prof. Nishanth N.	TEQIP – Phase II
25	14/12/15 to 19/12/15	FDP on Computer Vision and Video Analytics	Prof. Sajeena A. Prof. Reshna S.	TEQIP – Phase II
26	15/06/16 to 21/06/16	Biomedical Instrumentation and Image Processing	Dr. Sheeba O. Prof. Ajitha S S	TEQIP – Phase II
27	21/07/16 to 27/07/16	Recent Trends in Biomedical Signal and Image Processing	Dr. K. Gopakumar Prof. Shabeer S	TEQIP – Phase II
28	26/09/16 to 30/09/16	FDP on Research Topics in VLSI Devices. Circuits and Signal Processing	Dr. T A Shahul Hameed, Prof. Anu Assis	TEQIP – Phase II

26. Student profile programme/coursewise:

Name of the Course/programme	Applications received	Lowest State Merit Rank Admitted	Selected	Enrolled		Pass percentage
				*M	*F	
B. Tech (2008-12)	Admission from common rank list published by the Entrance Commissioner Government of Kerala		62	46	16	80.6
B. Tech (2009-13)		108	59	49	79.6	
B. Tech (2010-14)		112	72	40	74.8	
B. Tech (2011-15)		1296	70	38	32	74.2
B. Tech (2012-16)		1574	73	36	37	78.4
B. Tech (2013-17)		3559	71	34	37	
B. Tech (2014-18)		4031	73	37	36	
B. Tech (2015-19)		4773	133	80	53	
B. Tech (2016-20)		5049	128	74	54	

Name of the Course/programme	Applications received	Selected	Enrolled		Pass percentage
			*M	*F	
M.Tech (2012-14)	Admission from the list form the Directorate of Technical Education	18	8	10	76.5
M.Tech (2013-15)		18	11	7	68.7
M.Tech (2014-16)		18	7	11	94.4
M.Tech (2015-17)		18	3	15	
M.Tech (2016-18)		18	6	12	

*M=Male *F=Female

27. Diversity of Students

B. Tech students

Year	Percentage of students from the same state	Percentage of students from other States	Percentage of students from abroad
2008-12	100	0	0
2009-13	97.2	2.8	0
2010-14	97.4	2.6	0
2011-15	98.6	1.4	0
2012-16	94.4	4.16	1.4
2013-17	97.2	2.8	0
2014-18	97.3	2.7	0
2015-19	99.2	0.8	0
2016-20	97.7	2.3	0

M. Tech students

Year	Percentage of students from the same state	Percentage of students from other States	Percentage of students from abroad
2012-14	95	5	0
2013-15	95	5	0
2014-16	100	0	0
2015-17	100	0	0
2016-18	100	0	0

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services etc.?

UG Batch	GATE	NET	CAT	GRE	CIVIL SERVICE	DEFENCE
2008-12	11					
2009-13	19	1	1	1		
2010-14	14		2	1		
2011-15	1			1		
2012-16	1					

29. Student progression

Year	UG to PG	PG to Ph.D	Ph.D to Post Doctoral	Campus selection	Other than campus recruitment
2008-12	17.7%	1.6%	-	66%	9.6%
2009-13	21.3%	-	-	51.8%	13.9%
2010-14	16.8%	-	-	49.5%	18.7%
2011-15	1.5%	-	-	59.1%	-
2012-16	1.3	-	-	60.3%	-
2013 -17				48.5%	-

30. Details of Infrastructural facilities

a) Library

No	Descriptions	Quantity in Numbers	
2	Books in the department library for reference	Titles	1337

		Volume	2887
4	Technical Journals Printed		3
6	Technical magazines subscribed		2
7	NPTEL videos (Department Library)		1540

b) Internet facilities for Staff & Students

No.	Description	Quantity in Numbers
1	Computers (with internet facilities)	82
2	Bandwidth	50 Mbps (1:1) leased line fibre-optic connectivity from BSNL and a 10 Mbps Broad Band connection from BSNL
3	Computers with network facilities	76
4	Licensed software	6

c) Class room with ICT facility

No.	Description	Quantity in Numbers
1	Class rooms with white board/projector/internet/ICT facilities	9

d) Laboratories

No	Name of the Laboratory	Number of students per batch	Area (sqm)
1	Electronic Product Design Laboratory	35	76.72
2	Devices & Circuits Laboratory	35	106.02
3	Microprocessor & Microcontroller Laboratory	35	98
4	Communication Engineering Laboratory	35	101.3
5	DSP Laboratory	35	112
6	VLSI Design Laboratory	10	130
7	PG & Research Laboratory	18	130
8	Advanced Communication Laboratory	35	64.8
9	Digital Integrated Circuits Laboratory	35	64.8
10	Department Computing Facility	35	94

31. Number of students receiving financial assistance from college, university, Government or other agencies

Year	College	Government	Other Agencies
2011-12	7	146	1
2012-13	8	157	1
2013-14	9	109	1
2014-15	8	124	2
2015-16	2	79	3
2016-17			

No	Scholarship	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total

1	MCM from Ministry of Minority Affairs	15	14	19	26	31	25	130
2	Egrantz State Government SEBC Students, District Development Office (Kollam,Kerala)	56	63	24	39	36	64	282
	Egrantz State Government FC Students, District Development Office (Kollam,Kerala)	22	20	13	15	9	13	92
3	CSS (Central Sector Scholarship) Central Government General Students Scholarship	17	14	12	6	2	6	57
4	Egrantz State Government SC/ST/OEC, District Development Office (Kollam, Kerala)	24	28	25	26	40	52	195
5	TKM-MCM Institute Level Scholarship	7	8	9	8	2	12	46
6	FAEA Scholarship	0	1	1	1	1	0	4
7	Fisherman Students Scholarship		1	1	1	2	2	7
8	Lakshadweep Scholarship	5	5	4	3	3	0	20
9	University Merit scholarship	1	0	1	0	0	0	2
12	Prof. Lailamoni Scholarship			1	1	2		4

32. Details on student enrichment programmes (special lectures/ workshops/ seminar) with external experts

Department associations and the student chapters of different professional societies like IEEE, IETE, IE, CSI etc., function in the institution. They are providing access to the latest technical information and research, global networking and career opportunities. It conducts conferences and seminars of technical interest, technical workshops, technical tours, meetings, quiz on a regular basis. They bring about effective linkage between institution, industry and society

(Details are provided in Annexure)

33. Teaching methods adopted to improve student learning.

- All class rooms in our department are provided with multimedia projectors & screen and electronic podium for conducting presentation in addition to the facilities like black/green board, white board.
- Wi-Fi is available in every class rooms for Internet connectivity.
- Working models of electronic equipments are available in different labs and workshop.
- The department facilitates teaching with ICT aid, NPTEL videos, M-tutor facility to improve students learning.
- Seminars and workshops by experts from industries are arranged and students get an opportunity to interact with them.
- QEEE classes are conducted, so that students get an opportunity to listen to expert lectures from IITs/IISC.

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

There are many activities in the college to improve the social responsibility of each individual.

- The National Service Scheme (NSS) helps the youth to build their character, maintain discipline, create a sense of dignity of labor and instill their social consciousness.
- Students of our department are actively participating in Peripheral Blood Stem Cell Donation (PBSC), Blood donation camps, **Acrobatics etc.**
- STEPS are the helping hand for the people in need. They are conducting social awareness campaigns, charity programmes and most importantly elevating the status and providing education to the poor and orphaned children in the city.

35. SWOC analysis of the department and Future plans

Strengths

- Disciplined conduct of programs in the department.
- Good quality students with top ranks admitted through state entrance examination.
- Research work in collaboration with NITC, SCTIMST, NISH, Optoelectronics dept etc.
- Well-structured mentoring system to guide, support and motivate each student.
- Diverse students from various parts of the state as well as from other states in the country and abroad.
- Faculty members hold important positions in forums such as Senate, Board of Studies, Academic Council, Syllabus revision etc. in the University.
- Five faculty are PhD holders and 11 faculty members pursuing Ph. D

- Motivation and support from management for doing higher studies, pursuing research and enhancing knowledge.
- Library with sufficient books and access to various online journals from IEEE, ELSEVIER etc.

Weaknesses

- Project funding has to be improved.
- Post- graduate programmes need to be introduced.

Opportunities

- MoU signed with QuEST, TATA ELXSI is being used for more research oriented PG projects, internships and campus placements.
- Faculty pursuing Ph.D can be utilized for research enhancement.
- Potential alumni network in different areas like academics, R& D, Civil Service etc. to be explored for bringing funded research work and for motivating ongoing students.
- In KTU, the department is entrusted to lead the cluster consisting of ten Engineering colleges.
- Facilities for modern pedagogy and advanced learning support such as NPTEL and QEEE.

Challenges

- Making the students employable for R & D organizations
- Attract more core companies for campus recruitment.
- Setting up a research centre.
- Shifting of technological education from theory-based to application-based to meet demand from industries
- Equip students to cope-up with the trends in the changing job requirements

Future Plans

-
- To establish the department as a research centre.
- To start more PG programmes.
- To develop more research labs.
- To get more funded research
- To improve pass percentage above 90%
- To increase MoU with Industries

Appendix 1

Publications by Faculty

2010

1. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** Inducing Chaos in Wien-bridge Oscillator by Nonlinear Composite Devices. *International Journal of Electronics Engineering Research*, 2(4),489-496.
2. **Sheeba O, Dr.Sukeshkumar A**, Image Enhancement and Histogram Equalization in the Detection of Drusen Deposits in Human Retina, *AMSE journal(France) Vol-71, Issue- 1,2010,12 – 24*.
3. **Dr. T.A. Shahul Hameed, P. Predeep, M. R. Baiju** Polymer Light Emitting Diodes- A Review on materials and techniques.*Journal of Review of Advanced materials Science*,26,30-42.

2011

1. **Daizy Philip, Dr. Unni C.** Extracellular biosynthesis of gold and silver nanoparticles using Krishna tulsi (*Ocimum sanctum*) leaf *Physica E: Low – dimensional System and Nanostructures*.43,1318-1322.
(DOI:10.1016/physe.2010.10006)
2. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** Implementation of Chua's Circuit Using Simulated Inductance,*International Journal of Electronics, Taylor and Francis*,98(5),667-677
3. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** Chua's Oscillator in Integrated Circuit Form with Inbuilt Control Option. *International Journal of Circuits and Systems, World Scientific*,20(8),1591-1604
4. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** A Review of Complex Behaviour of a Driven Diode Resonator. *International Journal of Physics and Applications*, 3(1),105-115.
5. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** Experimental Study of Rank 1 Chaos in Chua's Oscillator with Cubic Nonlinearity. *International Conference on Advances in Communication, Network and Computing*, 351-355
6. **Dr. K.Gopakumar, B. Premlet and K. G. Gopchandran** Chaotic Optical Communication Using Chaos Synchronization Principle. *National Conference on Non-linear Systems and Dynamics, Bharathidasan University, Thiruchirapalli*
7. **Dr. T. A. Shahul Hameed, Aneesh J, M. R. Baiju and P. Predeep** Comparison of Electrical and Optical Behaviors of MEH-PPV and MEH-PPV/CNT blend based Polymer Light Emitting Diodes. *International Journal(Springer)*,64(3), 283-285
8. **Dr. T. A. Shahul Hameed, Aneesh J, M. R. Baiju and P. Predeep** Organic Light Emitting Diodes: Effect of Annealing the Hole Injection Layer on the Electrical and Optical Properties. *International Journal(Solid State Phenomena)*,171, 39-50
9. **Dr. T. A. Shahul Hameed, Aneesh J, M. R. Baiju and P. Predeep** Degradation and Leakage Currents in AlQ3 and MEH-PPV based Organic Light Emitting Diodes. *International Conference proceedings, American Institute of Physics*, 1391,184-186

10. **Nishanth .N, P. Venkataraman** Mobile agent based TCP Attacker Identification in MANET using the Traffic History (MAITH). *International Conference on Communication Technology(ICCT'11)*,1130-1134.
(DOI:10.1109/ICCT.2011.6158058)

2012

1. **Preetha Basu, Bhadran V, R. Gopikakumari** (2012) A New Algorithm to Compute Forward and Inverse 2-D UMRT for N –a power of 2. *IEEE International Conference on power, signals, controls and computation(EPSCICON)*.
2. **Dr. T. A. Shahul Hameed , Aneesh J, M. R. Baiju and P. Predeep** Impedance Spectroscopic Studies of Organic Light Emitting Diodes with Dimethyl Sulphoxide Doped Hole Injecting and Lithium Fluoride Electron Injecting Layers. *International Journal of Optoelectronics and Advanced Materials*, vol.6,91-94
3. **Dr. T. A. Shahul Hameed, Aneesh J, N. M. Faseena, G. D. Sharma and P. Predeep** Organic bistable memory device based on a novel pyrrolo-pyrrole derivative, PPbAN , *International Journal of Optoelectronics aand Advanced materials*, vol.6,1104-1106
4. **J. Doualath Beegum** Snore Sound Separation Of Enlarged Adenoid From Normal Heart Sound Using Blind Source Component Separation Method *International journal*
5. **J. Doualath** Snore Sound Separation Of Enlarged Adenoid From Normal Heart Sound Using Blind Source Component Separation Method Snore Sound Separation Of Enlarged Adenoid From Normal Heart Sound Using Blind Source Component Separation Method
6. **J. Doualath Beegum** Heart Sound Separation from Speech Signal Using DUET Technique. *International Conference*
7. **Preetha Basu, R. Gopikakumari, Jya V. L.** SMRT: A new placement approach of 2-D unique MRT coefficients for N a power of 2. *Annual IEEE India Conference(INDICON'12)*,233-237.

2013

1. **Dr. K.Gopakumar, Lienu Udayakumar** Secure Communication Using Chaos Synchronization Principle *International Journal of Applied Engineering Research*,8(3),287-294.
2. **Dr. K.Gopakumar , Rija .M. Raju** A Novel Watermarking Technique Based on Chaos Theory *International Journal of Applied Engineering Research*, 8(3),1081-1089.
3. **Dr. Sheeba O,Nikki Vinayan** Image segmentation and analysis in the case study of macular degeneration using LabVIEW. *International Journal of Engineering and Advanced Technology*,3(2)
4. **Dr. Sheeba .O,J. Abdul Jaleel and Ajitha S.S.** Retinal Vessel Extraction-A comparative Study of Gabor Wavelet Based Kernel Classifiers and Edge Detection Method. *International Journal of Applied Engineering Research*, 8(4), 453-460 (ISSN:0973-4562)

5. **Dr. T. A. Shahul Hameed, Aneesh J, Anju Iqbal, J.A. Jaleel and P.Predeep** Design and Simulation of Organic Solar Cells Based on P3HT: PCBM. *International Journal of Applied Engineering Research*, vol.8(1),15-22.
6. **Dr. T. A. Shahul Hameed, Aneesh J, M. R.Baiju, Abdul Jaleel and P.Predeep** Modeling, Simulation and Characterization of Organic Light Emitting Diodes. *International Journal of Applied Engineering Research*, vol.8(1),89-97.(ISSN 0973-4562)
7. **Sajeena A** A novel method for character segmentation of vehicle license plate *International journal of Research in Engineering and Technolgy*, vol2(11).(paper id:20130211110)
8. **Sajeena A.** An improved HDR image Processing using fast global tone mapping. *International journal of Research in Engineering and Technolgy*,vol2(12),(paper id:20130212194)
9. **J. Doualath Beegum** Blind Source Separation Of Sound And Music Signals Using Degenerate Unmixing Estimation Technique. *International Conference*
10. **Reshna S.** Image Encryption and Decription from pixel values using VHDL. *International Journal of Applied Engineering Research*, vol8(7),837-850
11. **Dr. J. Abdul Jaleel, Anu Assis and Sheriya Shabeer** Optimization of AES Encryption Algorithm with S-Box .*International Journal of Engineering Research and Technology*,6(2), 259-268
12. **Nishanth N, Dr. S. Suresh Babu.** Pseudo Random Alteration of Sequence Numbers (PRAS): a novel method for defending SYN flooding attack in Mobile Adhoc Network .IEEE *International Conference in Communication Technology(ICCT'13)*, Jinan,China, 20-25.(DOI:10.1109/ICCT.2013.6820344)
13. **Preetha Basu, R. Gopikakumari** Sparse Matrix based Computational Overhead Reduction in UMRT for N a power of 2. *International Journal of Computer Applications*. (DOI:10.5120/13133-0502)
14. **Preetha Basu, M. S. Aneesh Kumar, R. Gopikakumari** UMRT based Adaptive Block Size Transform Coder for Images Using Quad-tree partitioning. *International Journal of Scientific and Engineering Research*, vol.4(12) (ISSN 2229-5518.IJSER)
15. **Ajitha S.S, Dr. Sheeba .O,J. Abdul Jaleel** Retinal Vessel Extraction-A Comparative Study of Gabor Wavelet Based Kernel Classifiers and Edge Detection Method. *International Journal on Advanced Engineering and Research*, vol.8.(ISSN:0973-4562)

2014

1. **Jibu george, Sreekumari Amma P,** ‘Frequency reconfigurable CPW Antenna for various wireless applications’, *International Journal of Engineering Science and Innovative Technology*, Vol 3 Issue4 July 2014. ISSN : 2319-596
2. **Dr. K.Gopakumar, Rija M. Raju** An image authentication technique based on cross chaotic map .IEEE Proceedings of *International Conference on Computational Systems and Communication(ICCSC)*,197-202
3. **Rani T. George, Dr. K.Gopakumar** Spatiotemporal chaos in globally coupled NCA map lattices using 3- D Arnold cat map for digital image encryption. *IEEE proceedings on International Conference on Computational Systems and Communication(ICCSC)*,203-208.

4. **Dr. Sheeba O., Jithin George, Rajin P.K., Nisha Thomas and Sherin George** Glaucoma Detection using Artificial Neural Network. *International Journal of Engineering and Technology*, 6(2)
5. **Sheeba O and Ajitha SS**, Detection of diabetic retinopathy from Fundus Camera images, *International Journal of Engineering Trends and Technology*, Vol 24, No.4 ; June 2015, ISSN: 2231-5381
6. **Abid Hussain M.** A study on selection of membership function for fuzzy system using genetic algorithm. *International journal of Applied Engineering Research (IJAER '14)*
7. **J. Doualath Beegum** Separation Of Heart Murmur, "Aortic Regurgitation Sound", From Sound mixture using Component Separation Method. *International journal*
8. **Reshna S** Indian Sign Language Recognition – Review. *International Conference on Signal and Speech Processing, ICSSP '14.*
9. **Reshna S** Online Framework for Video Stabilization. *International Journal of Electronics and Communication Engineering and Technology*, vol5(12),38-46.
10. **Reshna S, Jayaraju M.** 'A survey on segmentation and feature extraction of images in Indian sign language recognition system, *Proceedings of Fifth National Conference on Indian Language Computing January 2015*, pp. 56-61.
11. **Nishanth N, Dr. Sandip Nemade, Manish Kumar Gurjar, Zareena Jamaluddin** Early detection of syn flooding attack by adaptive thresholding (EDSAT): A novel method for detecting syn flooding based dos attack in mobile ad hoc network. *International Journal of Advanced Research in Engineering and Technology (IJARET)*, 5(2), 79-86.
12. **Nishanth N, Dr. S. Suresh Babu** Sequence number alteration by logical transformation (SALT): A novel method for defending session hijacking in mobile adhoc network. *International Conference on Wireless and Optical Communication, (ICWOC '14)*, Singapore. (DOI:10.7763/IJCCE.2014.V3.346)

2015

1. **Sreekumari Amma P et al.**, Compact UWB MIMO antenna with WiMAX and WLAN rejection; 2015 IEEE MTT-S International microwave and RF Conference (ImaRC). Date: 10-12 Dec 2015
2. **Dr.K.Gopakumar**, Speech Encryption Based on Four-Dimensional Hyperchaotic System, *International Conference on Data Mining & Advanced Computing (SAPIENCE) March 2016*
3. **Dr.K.Gopakumar**, Non-Linear Analysis of Epileptic EEG, *International Conference on Data Mining & Advanced Computing (SAPIENCE) March 2016*
4. **Dr.K.Gopakumar**, A Real Time Decision Support System using Head Nod and Shake, *IEEE International Conference on Circuit, Power & Computing Technologies, March 2016*
5. **Dr. Sheeba O.** Performance Analysis of Patch Antenna using slot shaped Metasurface. *Proceedings of 3rd International Conference on Communications, Electrical, Electronics & Computer Engineering ICEEC, 34-38*
6. **Dr. Sheeba .O. et al.**, Performance Analysis of Patch Antenna using Slot Shaped Metasurface, *3rd International Conference on Communications, Electrical, Electronics & Computer Engineering (ICEEC 2015), Cochin, India.*

7. **Dr. Sheeba O**, Performance Analysis of Polarization Reconfigurable Antenna using Metasurface, *3rd International conference on Control, Communication & Computing, November 2015*.
8. **Dr. T. A. Shahul Hameed**, Impact of finshaped in FINFET performance. *2nd International Conference on Emerging trends in Technology and Applied Sciences*, 256-260
9. **Dr. T. A. Shahul Hameed** RF parameter extraction and performance analysis of nanowire MOSFETs. *National Conference on Emerging Trends in VLSI, ES, OE and SP*, 50-54.
10. **Dr. T. A. Shahul Hameed** Design of low power high speed flash ADC in 45nm technology. *International Journal of VLSI System Design and Communication Systems*, 3(5),620-625
11. **Dr. T. A. Shahul Hameed**, Simulation, Fabrication and Characterization of Polymer Light Emitting Diodes and photovoltaics using physics based tool. *International Conference*
12. **Abid Hussain M.** Medical decision support systems using fuzzy cognitive mapping and fuzzy interference system. *International research journal on Engineering and Technology*
13. **Abid Hussain M.** Performance analysis of RoF architecture for integrated broadband signals transmission. *3rd International Conference on Communications, Electrical, Electronics and Computer Engineering, Cochin (ICEEC '2015)*
14. **Reshna S.** A survey on segmentation and feature extraction of images in Indian sign language recognition system. *National Conference on Natural Language Processing, CUSAT*.
15. **Nishanth N, Shyma** Secure Routing in Mobile adhoc Network using Evidence theory. *IEEE International Conference on Communication, Computing (ICCC '15)*
16. **Nishanth N, Dr. S. Suresh Babu.** A novel SYN flood detection mechanism for wireless network. *IEEE International Conference in Communication Technology (ICCT '13)*, Jinan, China, 20-25. (DOI:10.1109/ICCT.2013.6820344)
17. **Ajitha S.S** Detection of Diabetic Retinopathy from Fundus Camera Images. *IJETT* (ISSN:2231-5381)

Publications guided by Faculty

2014-15

1. **Jibu George and P. Sreekumari Amma** Frequency Reconfigurable Coplanar Waveguide Antenna for Various Wireless Applications *International Journal of Engineering Science and Innovative Technology (IJESIT '14)*, Florida (IJESIT1909201404_1971)
2. **Amal.K.A, Prof.Sreekumari Amma** Compact Dual Band Microstrip Patch Antenna For WiFi And WiMax Applications *IEEE International Microwave And RF Conference (IMERC), 2015*
3. **B.AnooB, C.Unni** Investigation on Specific Absorption Rate for Handset Antenna with Electromagnetic Bandgap Structure Background *International Journal of Engineering Science and Innovative Technology (IJESIT '14)*, Florida (IJESIT1909201404_1971)

4. **Dr. K.Gopakumar, Rija M. Raju** An image authentication technique based on cross chaotic map .IEEE Proceedings of *International Conference on Computational Systems and Communication(ICCSC)*,197-202
5. **Jnana N.J., Dr. Sheeba O.** Performance Analysis of Patch Antenna using slot shaped Metasurface. *Proceedings of 3rdInternational Conference on Communications, Electrical,Electronics & Computer Engineering ICEEC*,34-38 (paper id:ICEEC23, 2015)
6. **Jithin George, Sheeba O.** Glaucoma Detection using Artificial Neural Network. *International Journal of Engineering and Technology (IACSIT), Vol 6, No. 2, April 2014*
7. **Vidhya V.J, Abid Hussain M.** Performance analysis of RoF architecture for integrated broadband signals transmission.3rd*International Conference on Communications, Electrical, Electronics and Computer Engineering, Cochin(ICEEC '2015)*(paper id:ICEEC222015)
8. **Priyanka L, Reshna S, S Suresh Babu, Binoy Pinto.** Online Framework for Video Stabilization. *International Journal of Electronics and Communication Engineering & Technology (IJECET), 38-46, Volume 5, Issue 12, December 2014.*
9. **Nishanth N, Shyma**Secure Routing in Mobile Ad-hoc Network using Evidence theory. 3rd*International Conference on Communications, Electrical, Electronics and Computer Engineering*16-21*Volume 4 Special Issue of (ICEEC '15).*(paper id:ICEEC292015), *Dunes Cochin, India.*
10. **Neethu Raj P, Dr. S Suresh Babu, Nishanth N.** A Novel Syn Flood Detection Mechanism for Wireless Network. *International Journal of Advanced Trends in Computer Science and Engineering(IJATCSE) vol 4,22-27, Dunes Cochin,India*
11. **Varsha A, Preetha Basu.** An Improved Duel Tree Complex Wavelet Transform based Image Denoising using GCV Thresholding.
12. **Ranimol T. George, Dr. K.Gopakumar** Spatiotemporal chaos in globally coupled NCA map lattices using 3- D Arnold cat map for digital image encryption. *IEEE proceedings on International Conference on Computational Systems and Communication(ICCSC)*,203-208.

2015-16

Jnana N.J., Dr. Sheeba O. Performance Analysis of Polarization Reconfigurable Antenna using Metasurface. *International Conference on Control, Communication & Computing India (ICCC), 13-21 November 2015, Trivandrum.*

2016-17

1. **Ariya Krishnan,Dr. K.Gopakumar.** Novel method for Automatic Road Extraction from Satellite Images. *International conference on Signal and Speech Processing (ICSSP '16) Sept 2016, Kollam.*
2. **Aswathy Devi.T, Dr. K.Gopakumar.** Rain Streak Removal from a Single Image Using Image Morphology. *International conference on Signal and Speech Processing (ICSSP '16) Sept 2016, Kollam.*

3. **Vidya Balu, Preetha Basu.** Image Watermarking Based on Discrete Wavelet Transform and Folded Principal Component Analysis. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
4. **Rinas T Nazeer, Sajeena A.** Object-Oriented Shadow Detection and Removal from High-Resolution Urban RSI. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
5. **Mahesh Jayan, Sheeba O.** A Novel Multiparameter Reconfigurable Pixel Antenna. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
6. **Ullas R, Dr. Sheeba O.** Performance Analysis of MultiBand Fractal Antennas. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
7. **Afra Basheer, Dr. Unni C.** Confidentiality Enhancement of Optical Code Division Multiple Access systems with Multicode Keying and Codeword Switching. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
8. **Swathi S, Abid Hussain M.** Algorithm of STBC Identification for MIMO OFDM Using Second-order Signal Cyclostationarity. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
9. **Athira Vijay N, Dr. Gopakumar K.** A Locally Optimal Neyman-Pearson Detector Based Wide Band Spectrum Sensing Method for OFDM Based Cognitive Radio in Weakly Correlated Non-Gaussian Noise. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
10. **Sreekanth Prabhakar C. M, Sreekumari Amma P.** Polynomial Expansion Based Channel Estimation and Equalization for MIMO-OFDM Systems. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
11. **Shyama Sreekumar, Sreekumari Amma. P.** SAGE Based Channel Estimation Algorithms for MIMO-OFDM Systems. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
12. **Amrutha P R, Dr. Unni C.** A High Precision Adaptive Equalization Procedure for Digital Coherent Optical QPSK Receivers. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
13. **Govind Nampoothiri V, Heera Karunakaran.** Symmetric 40Gbps Next Generation OFDM WDM PON System. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
14. **Aparna M.,** A precursor to the Hardware Implementation of Traffic Sign Recognition Using Support Vector Machine. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
15. **Aparna S S, Nishanth N.** Detection of DoS attacks in MANET and Privacy Preserving by Clustering. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*
16. **Najla Nizar, Nishanth N.** Detection of Dos Attack in Mobile Ad Hoc Networks with Trust Management and Multi-Relay Selection. *International conference on Signal and Speech Processing (ICSSP'16) Sept 2016, Kollam.*

Appendix 2

Sl No	Name of faculty	Membership in professional bodies		Membership in boards
		National Committee	International Committee	
1	Dr Unni C	Life Member ISTE, Fellow OCI		Chairman ,Board of Examiner. B.Tech Examination, University of Kerala
2	Sreekumari Amma P			
3	Heera Karunakaran	MIE	Member IETE	Chairman ,Board of Examiner. B.Tech Examination, University of Kerala
4	Dr.K Gopakumar	Member ISTE, Fellow IEI, Executive committee member of ISTE student's chapter, TKMCE, Kollam, 2013-14	Fellow IETE	Member, Board of Studies in Optoelectronics, University of Kerala, Chairman, Board of Studies in Electronics, University of Kerala, 2013-16 Chairman, Board of Examiners, ECE branch, University of Kerala, 2013-14 Member, Board of Studies in Electronics, University of Kerala, 2010-13 Member, Board of Studies in BASLP, University of Kerala, 2008-11. Chairman, Board of Examiners, MSc Electronics, Different Years. Member, UG Syllabus revision

				committee, ECE branch, University of Kerala (1998, 2003, 2008 and 2013 Schemes) Question Paper setter of CUSAT and Kerala University.
5	DrSheeba O	Life member ISTE, MIE	Member IETE	Chairman ,Board of Examiner. S3& S4 B.Tech Examination, 2013-14 Reviewer of AMSE journal, France.
6	Dr T A Shahul Hameed	Life Member ISTE	Member IETE	Chairman ,Board of Examiner. B Sc (Electronics), University of Kerala Chairman ,Board of Examiners. S3& S4 B.Tech Examination, University of Kerala
7	AbidHussain M	Life Member ISTE, Fellow IE	Member IETE	Deputy Chairman, Board of Examiners. B.Tech Examination, University of Kerala
8	Shabeer S			Chairman ,Board of Examiner. S3& S4 B.Tech Examination, 2016-2017
8	Najia A			Chairman ,Board of Examiner. S3& S4 B.Tech Examination, April/May 2014 Deputy Chairman ,Board of Examiner. S3& S4 B.Tech Examination, 2014 2015
10	Sajeena A	Life Member ISTE		Deputy Chairman ,Board of Examiner. S1- S2 B.Tech Examination, 2014 2015, Chairman, Board of Examiner. S3& S4

				B.Tech Examination, 2015-2016 Deputy Chairman, Board of Examiner. S5& S6 B.Tech Examination, 2016-17
11	J DhoulathBeegum	Member ISTE, Member IE, CE, Member AcSc		
12.	Reshna S			Deputy Chairman ,Board of Examiners. S1S2 B.Tech Examination, 2015-2016
13	AnuAssis	AFScT	Member IETE	
14	Nishanth N		Member IEEE	
15	PreethaBasu	Life Member ISTE, Member IE	Member IETE	

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
EVALUATIVE REPORT**

1: Name of Department:Computer Science and Engineering

2: Year of Establishment:1984

3: Name of programme /Courses offered

No	Engineering/Technology			Year of Start
1	UG	B.Tech	Computer Science and Engineering	1984
2	PG	M.Tech	Computer Science and Engineering	2012

4. Names of inter disciplinary courses and departments / units /subjects involved

No	Scheme	Subjects	Semester	Department involved
1	2015-KTU	Calculus	I	Department of Mathematics
2	2015-KTU	Engineering Physics	II	Department of Physics
3	2015-KTU	Engineering Chemistry	I	Department of Chemistry
4	2015-KTU	Engineering Mechanics	I	Department of Civil Engineering
5	2015-KTU	Engineering Graphics	II	Department of Mechanical Engineering
7	2015-KTU	Basics of Mechanical Engineering	II	Department of Mechanical Engineering
8	2015-KTU	Basics of Electrical Engineering	II	Department of EE Engineering
9	2015-KTU	Basics of Electronics Engineering	I	Department of EC Engineering
10	2015-KTU	Engineering Physics Laboratory	II	Department of Physics
11	2015-KTU	Engineering Chemistry Laboratory	I	Department of Chemistry
12	2015-KTU	Mechanical Engg Workshop	II	Department of Mechanical Engineering
13	2015-KTU	Differential Equation	II	Department of Mathematics
14	2015-KTU	Electrical Engineering Workshop	II	Department of EEE
15	2015-KTU	Engineering Mathematics-II	III	Department of Mathematics
16	2015-KTU	Probability Distributions, Transforms and Numerical Methods.	IV	Department of Mathematics

17	2013-KU*	Engineering Mathematics III	IV	Department of Mathematics
18	2013-KU	Electronics Devices and Circuits	III	Department of EC Engineering
19	2013-KU	Electronic Circuits Lab	III	Department of EC Engineering
20	2013-KU	Humanities & Economics	III	Department of Mechanical Engineering
21	2013-KU	Engineering mathematics IV	V	Department of Mathematics
22	2013-KU	Advanced Mathematics And Queuing Models	V	Department of Mathematics

*KU-Kerala University

5. Annual /Semester/ Choice based credit system (Programme wise):

No	Engineering/Technology			System
1	UG	B.Tech	Computer Science and Engineering	Semester credit system
2	PG	M.Tech	Computer Science and Engineering	Semester credit system

6. Participation of the department in the courses offered by other departments:

Computer Programming- Department of Electronics and Communication Engineering

7. Courses in Collaboration with other universities, industries, foreign institution etc.:

Sl.No	Name of University	Nature of Course
1	Mahatma Gandhi University	M.Tech Thesis work in the area of Computer Networks

8. Details of course/programme discontinued(if any): Nil

9. Number of teaching posts.

No	Teaching post	Sanctioned	Filled
1	Professors	2	-
2	Associate Professors	4	2
3	Assistant Professors	8	12

10. Faculty Profile with Name, Qualification, Designation, Specialization

No	Name	Qualification	Designation	Specialization	Years of experience	Ph.D students guided last 4 years
1	Prof.M.K.Sulaiman (Retired on 30-05-2016)	M.Tech	Professor	Computer Science and Engineering	33	
2	Dr.D.Chithraprasad (Retired on 30-05-2016)	Ph.D	Professor	Computational Geometry	32	6
3	Dr.Ansamma John	M.Tech	Associate Professor[HOD]	Computer Science and Engineering	23	
4	Prof. Thushara A. (on leave)	M.Tech	Associate Professor	Computer Science and Engineering	14	
5	Prof. Dimple A. Shajahan (on QIP deputation)	M.Tech	Assistant Professor	Computer Science and Engineering	15	
6	Prof. Aneesh G. Nath	M.Tech	Assistant Professor	Computer Science and Engineering	8	
7	Prof. Mohammed Siyad	B.Tech	Assistant Professor	Computer Science and Engineering	8	
8	Prof. Nisa A. K.	M.Tech	Assistant Professor	Computer Science and Engineering	6	
9	Dr. Manu J. Pillai	Ph.D	Assistant Professor	Mobile and Adhoc Networks	6.5	
10	Prof. Shameem Ansar	M.Tech	Assistant Professor	Wireless Networks and Applications	5.5	
11	Prof. AnanthaPadmanabhan	M.E	Assistant Professor	Computer Science and Engineering	1.9	
12	Prof. Shyna A.	M.Tech	Assistant Professor	Computer Science and Engineering	1.9	
13	Prof. Reshma Sheik	M.Tech	Assistant Professor	Computer Science and Engineering	1.9	
14	Prof. Rahulnath H.A.	M.Tech	Assistant Professor	Information Security	1.9	
15	Prof. Reena Mary George	M.Tech	Assistant Professor	Computer Science and	1.9	

				Engineering		
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16	Prof. Rehannara Beegum	M.Tech	Assistant Professor	Computer Science and Engineering	1.1	
16	Prof. Jini Raju	M.Tech	Assistant Professor	Computer Science and Engineering	1.1	
18	Prof. Jaisooraj	M.Tech	Assistant Professor (Temporary)	Computer Science and Engineering	1.5	
19	Prof. Anju K B	M. Tech	Assistant Professor (Temporary)	Computer Science and Engineering	2	

11. List of senior visiting faculty: Nil

12. Percentage of lectures delivers and practical classes handled by temporary faculty

Academic Year	No.of Guest Faculty	Percentage of lectures delivers and practical classes
2011-12	2	18.3%
2012-13	6	24%
2013-14	6	35.9%
2014-15	6	35.9%
2015-16	3	23.17%
2016-17	2	13.58%

13. Student-Teacher Ratio:

U.G - B.Tech - Computer Science and Engineering

No	Academic Year	Sancti oned Intake	Student Strength					Faculty Strength	Student-Teacher Ratio
			I	II	III	IV	Total, Except I year		
1	2011-2012	50	55	60	61	58	179	11	16.27
2	2012-2013	50	53	56	59	61	176	11	16
3	2013-2014	50	59	63	55	58	176	11	16
4	2014-2015	60	66	61	66	55	182	11	16.5
5	2015-2016	60	67	67	56	67	190	11	17.27
6	2016-17	60	68	73	65	55	193	12	16.08

P.G - M.Tech – Computer Science and Engineering

No	Academic Year	Sanctioned Intake	Student Strength			Faculty Strength	Student-Teacher Ratio
			I yr	II yr	Total		
1	2012-13	18	16	-	16	3	10.6

2	2013-14	18	17	16	33	3	11
3	2014-15	18	18	17	35	3	11.67
4	2015-16	18	17	18	35	3	11.67
5	2016-17	18	18	17	35	3	11.67

14. Number of academic support staff (technical) and administrative staff:

Description	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	S	F	S	F	S	F	S	F	S	F	S	F
Technical Support Staff	5	5	6	6	6	6	6	6	7	7	7	7
Administrative Staff	0											

15. Qualification of teaching faculty with DSc/ D.Litt/ Ph.D/ MPhil/ PG:

Qualification	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	S*	F*	S	F	S	F	S	F	S	F	S	F
UG	3	3	4	4	4	4	2	2	1	1	0	0
PG	3	3	5	5	5	5	7	7	11	11	13	13
PhD	2	2	2	2	2	2	2	2	2	2	2	2

S – Sanctioned F – Filled

16. Number of faculty with ongoing projects from National/ International funding agencies and grants received:One

17. Department projects funded by DST-FIST,UGC,DBT,ICSSR etc. and total grants received

Year	Title of the Project	Funding Agency	Amount Received (Lakhs)	Status
2016-2017	Building Boundary Tracing and Regularization from LIDAR Point Cloud	TEQIP	0.8	Completed
	Performance Improvement in Mobile and Wireless Networks – A Cross Layer Approach	TEQIP	1.93	Completed
	Sentiment Analysis on Various Domain	TEQIP	1.05	Completed
	Air Writing- Tracking and Processing hand Gestures using Doppler Shift and IR Array	CERD	1.298	Ongoing

2012-2014	An Automated Machine Vision Based Coin Sorting System	CERD	1.1	Completed
2012-2014	Colour Image Compression Based on Block Truncation Coding using Fuzzy edge Operator and Genetic Algorithm	AICTE	10	Completed
2012-2013	Soft Computing Techniques in Engineering Application	AICTE	6.65	Completed
2011-2013	Modernization of Microprocessor and interfacing Lab	AICTE	8	Completed

18. Research Centre/Facilities recognized by the University

- Application under processing for recognizing the Department of Computer Science and Engineering as Research Centre of Kerala University.
- Two Faculty members are approved Research Guides of University of Kerala.

19. Publications: Last Four years

Number of publications by Faculty (2011- 2015)(Details given in Annexure)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals						1	1
2	International Conferences	6	4	5	14	10	11	50
3	Journal Publications	2	2	9	11	2	3	29
4	National Conferences			1	-	-	-	1

Number of publications by students

No	Publications	2014-15	2015-16	2016-17	Total
1	Refereed Journals	-	-	-	-
2	International Conferences	8	7	10	27
3	Journal Publications	8	2	5	15

Number of publications listed in International Database (For Eg.: Web of Science, Scopus, Humanities International Complete, Dare Database – International Social Science Directory, EBSCO host, etc):

20. Areas of consultancy and income generated: Nil

21. Faculty as members in

i) National Committees ii) International Committees iii) Editorial Boards

No	Name of Staff	Membership in Professional Bodies	
		National	International
1.	Dr.D.Chithraprasad	ISTE (Life Member),CSI (Life	ACM Member

		Member), IE (Fellow of Institution Engineers- Chartered Engineer)	
2.	Dr.Amarnishad T.M	ISTE (Life Member), CSI (Annual Member), IE (Fellow of Institution Engineers- Chartered Engineer)	
3.	Prof. M.K.Sulaiman	CSI (Annual Member)	
4.	Dr. Ansamma John	ISTE (Life Member), CSI (Annual Member), IE (MI of Institution Engineers- Chartered Engineer)	
5.	Dr.Manu J. Pillai	CSI (Annual Member)	ACM Annual Member
6.	Prof. Shameem Ansar.A		ACM Annual Member
7.	Prof. Reshma Sheik	CSI (Annual Member)	
8.	Prof.Rahulnath.H A		ACM(Annual Member) IEEE Member(Annual Member) IEEE Computer Society(Annual Member)
9.	Prof.Rehannara Beegum T	CSI(Annual Member)	

22.Student Projects

- a)Percentage of students who have done in-house project including inter departmental.
b) Percentage of students placed for projects in organization outside the institution.

Course	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	I*	O*	I	O	I	O	I	O	I	O	I	O
B.Tech Computer Science and Engineering	100	0	100	0	100	0	88	12	100	-	100	-
M.Tech Computer Science and Engineering	-	-	100	-	100	-	100	-	100	-	100	-

*I-Inter Departmental,O- Research laboratories/Industry/Other Agencies

23. Awards / Recognitions received by faculty and students

Awards/Recognitions Received		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		*A	*R	A	R	A	R	A	R	A	R	A	R	A	R
Students	Curricular		1		2	4		1	4	3	5	3	1	11	13
	Co-Curricular	11		9		20	1	11		5		17	4	73	5
Faculty							1				1	2	2	2	4

*A-Award R-Recognition

24. List of eminent academicians and scientists/visitors to the department

Year	Name of the Academicians/Scientists
2016-17	Dr.Jagadanand ,Assistant Professor ,NIT Calicut Rajesh R ,C-DAC,Trivandrum
2015-16	Dr. S. D.Madhukumar, Associate Professor, Department of CSE NIT Kozhikode Dr. Santle A.Camilus, Chief Engineer, Samsung India Research, Bangalore Dr. Priya Chandran, Professor, Department of CSE NIT Kozhikode
2014-15	Dr. VeniMadhavan, Professor,IISC, Bangalore Dr. Lakshmi Narasimhan, Professor, Department of Computer Science ,East Carolina University, USA Mr.Sanjay Burman, Director,DRDO Bangalore Dr. Tirumala K. Ramesh, Professor Amrita Vishwa Vidyapeetham, Bangalore Dr.Krishnamoorthi, Professor, Anna University Dr. Madhu Muthyam, Department of Computer Science and Engineering , IIT Chennai
2013-14	Dr. S.P.Pal, IIT, Kharagpur, Dr.Pandurangan, IIT Chennai Sri. Bhadran V K, Smt. Ramani B, C-DAC, Thiruvananthapuram, ISRO, Thiruvananthapuram
2012-13	Mr. PremSasidharan, Senior System Software Engineer, NVIDIA, San Francisco, USA

25. Seminars/ Conferences/ Workshops organized & the source of funding

- a) National b) International

Organized Inter National Conference on Advances in Computing Communication and Information Science-ACCIS'14 during 26-28 Jun, 2014

Seminars / Conferences / Workshops	N/I*	Title	Date	Funding Agencies
Workshop	N	Softcomputing Techniques in Engineering Applications	17-30 Jun 2013	AICTE
Seminar	N	Algorithm Design Techniques	11-12 Jul 2013	TEQIP
Seminar	N	Workshop on Network on Chip	24-25 Jul 2013	TEQIP
Seminar	N	Invited Lecture on Research Methodology	04-05 Oct. 2013	TEQIP
Workshop	N	Computer Hardware Maintenance and Trouble Shooting	21-22 Oct. 2013	TEQIP
Workshop	N	Application development using Java	27-29 Nov. 2013	TEQIP
Seminar	N	Workshop on Algorithm Design Paradigm	08-09 Nov. 2013	TEQIP
Workshop		Workshop on Android Application Development	04-06 Dec. 2013	TEQIP
Seminar	N	Probabilistic Algorithms	17 Dec. 2013	TEQIP
Conference	I	International Conference on Advances in Computing, Communication and Information Sciences	26-28 Jun 2014	TEQIP
Seminar	N	Number Theoretic Algorithm	02-03 Jan. 2015	TEQIP
Seminar	N	Accreditation, the ABET Processes and Some International Perspectives	17 Jan. 2015	TEQIP
Seminar	N	Mobile Communication- A Practical Approach	20 Mar. 2015	TEQIP
Seminar	N	Course on Machine Learning and Natural Language Processing	4-9 Jan. 2016	TEQIP
Workshop	N	Hands on Workshop on Real-time object classification.	21st to 23rd October 2016	TEQIP
Seminar	N	Deep Dive into Cloud Computing	27 Jan 2017	Institute

*N/I – National/ International

26. Student profile programme / course wise:

(i) B.Tech Computer Science and Engineering

Programme (Admission)	Academic Year	Sanctioned Intake		Other Quota	Total	Enrolled	
		SM*	LE*			M*	F*
B.Tech Computer Science and Engineering (Allotted from common rank list prepared by the Entrance commissioner, Government of Kerala)	2011-12	50	4	3	57	31	26
	2012-13	50	4	9	63	40	23
	2013-14	50	4	2	61	42	19
	2014-15	60	6	1	67	41	26
	2015-16	60	6	7	73	57	16
	2016-17	60	6	8	74	50	23

(*SM – State Merit LE – Lateral Entry M - Male F – Female)

(ii) M.Tech Computer Science and Engineering

Programme	Academic Year	Sanctioned Intake	Total	M*	F*
M.Tech Computer Science and Engineering (Allotted from common rank list prepared by the Directorate of Technical Education, Government of Kerala)	2012-13	18	16	7	9
	2013-14	18	17	6	11
	2014-15	18	18	6	12
	2015-16	18	17	5	12
	2016-17	18	18	3	15

(*M - Male F – Female)

Student Pass percentage

Programme	Academic period	Appeared Students	Passed Students	Pass %
B.Tech Computer Science and Engineering	2007-11	60	42	70
	2008-12	58	43	74.13
	2009-13	59	45	76.3
	2010-14	57	40	74.1
	2011-15	54	44	81.5
	2012-16	63	43	68.25
	2013-17	Result Awaiting		
M.Tech Computer Science and Engineering	2012-14	16	13	81.2
	2013-15	17	14	82.4
	2014-16	17	14	82.4
	2015-17	Result Awaiting		

27.Diversity of Students

Name of the Course	Academic year	Percentage of Kerala Students	Percentage of Students from Other States	Percentage of Students from Abroad
	2011-12	96	2	2

B.Tech Computer Science and Engineering	2012-13	94	4	2
	2013-14	94	4	2
	2014-15	94	4	2
	2015-16	98	2	-
	2016-17	100	-	-
M.Tech Computer Science and Engineering	2012-13	100	0	0
	2013-14	100	0	0
	2014-15	98	2	0
	2015-16	100	0	0
	2016-17	100	0	0

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services etc?

Competitive Examination	2011	2012	2013	2014	2015	2016	2017
GATE	3	8	5	4	4	12	10
CAT	NIL	NIL	NIL	1	NIL	NIL	1

29. Student Progression

Student Progression	2011-12 (%)	2012-13 (%)	2013-14 (%)	2014-15 (%)	2015-16 (%)	2016-17 (%)
UG to PG	17.24	18.64	8.77	5.55	3.7	NIL
PG to Ph.D	NIL	NIL	NIL	NIL	NIL	NIL
Employed Campus Selection	67.24	64.40	50.87	61.11	74.07	65.45
Employed other than Campus Selection	6.89	8.47	7.01	3.70	1.8	3.63

30. Details of Infrastructural facilities

a) Library

No.	Descriptions	Quantity in Numbers	
		Titles	Volume
1	Books for students circulation(Central Library)	Titles	4750
		Volume	19000
2	Books in the department library for reference	Titles	1642
		Volume	3763
3	Technical Journals (Central Library)	National	12
		e-journals	188
4	Technical magazines subscribed(Central Library)	6	
5	News Papers(Central Library)	10	
6	Educational CD's(Central Library)	500	

7	Power point Presentations(Central Library)	500+ PPT
8	Illustrative charts/ Models etc.	Available

(b) Computer Facilities

No.	Items	Quantity in Numbers
1	Server class computer	4
2	Desktop computer	238
3	Laptops	3
4	Workstation	1
5	Laser Printers	8
6	Dot Matrix Printers	1
7	Laser Printer Color	1
8	Photocopier cum network printer	3
9	Scanner	2
10	Switches	22
11	Routers	5
12	Internet Bandwidth	100 Mbps

All the above systems are in LAN with internet facility. All the computers are UPS connected.

Licensed Software

1. Microsoft cloud campus agreement
2. Oracle 11g
3. MATLABR2013b+Tool Box(3 users)
4. Qualnet 7.1 Simulator

(c) Class room Facility

No	Usage	Quantity (nos)	Capacity	Area (m ²)	Facilities
1	Class room for PG	2	25	48	Podium, Amplifier with mike, Black board, Internet, Projector.screen,9 benches and desks, Black board, adequate number of fans and lights.
2	Class room for UG	4	70	70	Podium, Amplifier with mike, Black board, White board, Notice,Projector,14 benches and desks, Black board, adequate number of fans and lights.

(d) Laboratory Details

No	Name of Laboratory	Area (m ²)	Facilities
1	Operating system and networking laboratory	127	Air Conditioner, UPS, Internet facility, computer (65nos), Servers, Networking units, Internet facility, Heavy duty high speed printer, Photo copier, Projector, screen, White board, Black

			board, These facilities are also shared for Application Software Development Laboratory
2	Computing Laboratory #1	110	Centralized A/C, computer (35nos) Internet facility, Servers, Networking units, Heavy duty high speed printer 3 Nos., UPS, White board, Black board, cupboard, adequate number of fans and lights. These facilities are also shared for Programming Laboratory
3	Micro Processor Laboratory	172 m ²	Air Conditioner, Computers, UPS, Microprocessor kit, related accessories, computers. These facilities are also shared for Computer Hardware Interfacing Laboratory
4	Digital System Laboratory	172 m ²	Air Conditioner , Computers, UPS, Lab equipments
5	PG Laboratory	69 m ²	Air Conditioned room, Business class computer systems (20 nos), Networking Units, Internet facility, Licensed software, Projector, UPS.
6	Image processing Research Laboratory	20 m ²	Air Conditioner, Computers, UPS, printer, scanner, high resolution camera, Licensed MATLAB software, internet facility
7	New Computing Laboratory #2	170	Air Conditioner, UPS, Internet facility, computer (90nos), Networking units, Photocopier cum printer, Projector, screen, White board, Black board

31. Number of students receiving financial assistance from college, university, government or other agencies

a) Course: B.Tech

Name of the Scholarship	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Egrantzfor SEBC and FC from the Governement of Kerala SC/ST/OEC	59	51	42	65	61	72	350
MCM from Ministry of Minority Affairs, Central Government	12	14	21	19	24	25	115
Central Sector Scholarship, Central Government General Student Scholarship	10	17	15	14	9	3	68

TKM-MCM Institute Level Scholarship	6	6	6	9	8	-	35
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b) Course : M.Tech

Received Financial Assistance	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Egrantzfromthe Government of Kerala, SC/ST/OEC	3	5	6	9	14	37
GATE Scholarship from MHRDE	12	13	12	13	8	58
TEQIP Scholarship	-	2	2	3	8	15

32. Details on student enrichment programmes (special lectures / workshops / seminar)

Year	Name of the Academicians/ Scientists/ Institution/Industry	Purpose of Visit
2016-17	Rejith Krishnan Chief Architect, CLOUD BOURN	Online talk on Project Kick-off IoT on 8/8/2016
	Jishad A.V, PerleyBrook,PVT.LTD	Hands on Workshop on Real-time object classification on 21st to 23rd October 2016
	Dr.Jagadanand, Assistant Professor, NIT ,Calicut Rajesh.R,Senior Engineer, C-DAC ,Trivandrum	FDP on Embedded Systems on Sept 30,Oct 1,2 2016
2015-16	Dr.Priya Professor, Department of CSE NIT,Kozhikode	Guest Speaker Jan. 2016
	Dr. R.Krishnamoorthi, Associate Professor, Department of CSE, Anna Univeristy	Guest Speaker Feb. 2016
	Dr. S.D.Madhukumar, Associate Professor, Department of CSE , NIT Kozhikode.	Guest Speaker, Oct. 2015
	Krishna Sharma, Cyber Security Researcher, Ethical Hacker , Malware Analyst,Workshop on Cyber Security and Ethical Hacking	Guest Speaker, Sept. 2015
	Dr.Santle A.Camilus, Chief Engineer, Samsung India Research, Bangalore	Guest Speaker Jul 2015
2014-15	Dr. VeniMadhavan, Professor, IISC, Bangalore	Invited guest and session chair. Int. Conf. ACCIS' 14
	Dr. Tirumala K. Ramesh, Professor Amrita Vishwa Vidyapeetham, Bangalore	Invited guest and session chair. ACCIS' 14
	Dr. Lakshmi Narasimhan, Professor, Department of Computer Science East Carolina University, USA	Invited guest and session chair. ACCIS' 14

	Dr.Krishnamoorthi, Professor, Anna University	Invited guest and session chair. ACCIS'14
	Mr.Sanjay Burman, Director,DRDO Bangalore	Keynote Speaker. ACCIS'14
	Mr. BIJU N., Junior Telecom Officer, BSNL Mobile, Thiruvananthapuram	Invited Talk, Mar 2015
2013-14	Mr.Arun Kumar T., Mr. Santhosh T. , PantechProEd Pvt. Ltd, Chennai	Invited Talk
	Mr. Kishore Kumar, CEO,OSPYN Technologies, Thiruvananthapuram	Invited Talk, Oct. 2013
	Mr. Anil Kumar CTO, InfoTech, Cochin	Invited Talk, Oct. 2013
	Mr. S. Sivakumar, AirWatch, Bangalore	Invited Talk, Oct. 2013
	Mr. Manu Nazareth(Development Manager), AirWatch, Bangalore	Invited Talk, Jan. 2014
	Wg Cdr(Rtd) Simon K John, Regional Center for Military Airworthiness(Engines), CEMILAC, Ministry of Defence, Bangalore	Invited Talk, Mar. 2014
	Sri. Bhadran V. K., C-DAC, Thiruvananthapuram, Smt. Ramani B., ISRO, Thiruvananthapuram	Invited Talk, Mar. 2014
	Mr. PremSasidharan, Senior System Software Engineer, NVIDIA, San Francisco, USA	Invited Talk, Mar. 2014
	Mr. Kishore Kumar, CEO ,OSPYN Technologies, Thiruvananthapuram	Invited Talk, Mar. 2014

33. Teaching methods adopted to improve student learning

Aiming at the effectiveness of the teaching learning process, the department facilitates the use of various teaching tools such as

- Power point presentation
- NPTEL
- QEEE Courses
- Online resources from campus software
- Modern resources – available with websites of IIT, MIT etc.
- e- Journals and e-books

34. Participation in Institutional Social responsibility (ISR) and Extension activities

Students participated in the following social welfare activities and faculty members coordinated the events:

- National Service Scheme
- Cleaning activities
- Blood donation camp
- BhumithraSena
- Planting trees
- STEPS Activities

35. SWOC analysis of the department and Future Plans

Strengths

- The Department of Computer Science & Engineering established in the year 1984 was the first CSE Department in Kerala along with two government Engineering colleges.
- The department is enriched with well qualified, experienced and dedicated faculty members.
- The department has adequate infrastructure with smart class rooms, highly equipped software and hardware laboratories.
- The department library has a good collection of books - 1200 titles and 2612 volumes for UG and PG courses.
- The faculty members of the department have been guiding research works and are representing different academic bodies like Board of Studies (Engineering UG & PG), Academic Council, Faculty of Engineering etc. of Kerala University. .
- The department has MoUs with TCS, Oracle and Kreara Solutions (Technopark, Thiruvananthapuram) to strengthen the relationships with industry. In addition, department is an active member in Oracle Academy Programme.
- Keeping good relationship with alumni and extending their support to department activities.

Weaknesses

- Research publications and funded projects need to be increased.
- Approval for more PG courses are required

Opportunities

- Opportunity to acquire higher qualification for faculty
- Opportunity to collaborate with various institutions and industries to impart training classes and hands-on-training in the areas Computer Science and Engineering
- To be part of research projects funded by State, Central Governments and other agencies.
- Through the programme the department got enough opportunity to produce excellent computer engineers and scientists to take up the technological challenges in the society.

Challenges

- Maintain excellent performance among the colleges under Technological University.
- Mould the students to cope with latest trends in IT industries.

Future Plans

- Transform department as an approved research centre.
- Increase number of MoUs and Industry collaboration for the benefit of the institution and students
- To setup cloud environment for UG and PG student through research projects
- Aiming to obtain patents for research oriented projects of faculty members.

**DEPARTMENT OF CHEMICAL ENGINEERING
EVALUATIVE REPORT**

1. **Name of the department** : Chemical Engineering
2. **Year of Establishment:** 1980
3. **Names of Programmes/Courses offered** : B.Tech in Chemical Engineering
4. **Names of Interdisciplinary courses and the departments/units involved**

Scheme	Subject	Semester	Departments involved
Kerala University 2013 Scheme	Engineering Mathematics-II	III	Department of Mathematics
	Physical and Inorganic Chemistry		Department of Chemistry
	Machine Drawing		Department of Mechanical Engineering
	Chemistry Lab I		Department of Chemistry
	Engineering Mathematics –III	IV	Department of Mathematics
	Humanities		Department of Mechanical Engineering
	Electrical Technology		Department of Electrical & Electronics Engineering
	Chemistry Lab II		Department of Chemistry
	Engineering Mathematics IV –	V	Department of Mathematics
Fluid Mechanics Laboratory	Department of Mechanical Engineering		
KTU Scheme Semester I to IV	Calculus	I	Department of Mathematics
	Differential Equations		Department of Mathematics
	Engineering Chemistry		Department of Chemistry
	Engineering Mechanics		Department of Civil Engineering
	Introduction to Civil Engineering		Department of Civil Engineering
	Engineering Graphics	II	Department of Mechanical Engineering

	Basics of Mechanical engineering		Department of Mechanical Engineering
	Engineering Physics		Department of Physics
	Basics of Electrical Engineering		Department of Electrical and Electronics Engineering
	Linear Algebra & Complex Analysis	III	Department of Mathematics
	Chemistry for process engineering - I		Department of Chemistry
	Chemistry lab for process engineering - I		Department of Chemistry
	Buisness Economics		Department of Mechanical Engineering
	Probability Distributions, Transforms and Numerical Methods	IV	Department of Mathematics
	Chemistry for process engineering - II		Department of Chemistry
	Fluid and particle mechanics lab		Department of Mechanical Engineering

5. Annual/semester/choice based creditsystem (programmewise) :Semester based credit system

6. Participation of the department in the courses offered by other departments: Two non-departmental elective courses have been introduced in the new syllabus of APJ Abdul Kalam Kerala Technological University, which will come into effect from the final year of 2015 admission students. Students from other department are to attend these courses offered by the faculty of the department.

7. Courses in collaboration with other universities, industries, foreign institutions, etc:
Nil

8. Details of courses/programmes discontinued (ifany) with reasons: Nil

9. Number of teaching posts

Post	Sanctioned	Filled
Professors	3	3
Associate Professors	0	0
Assistant Professors	6	6

10. Faculty profile with name, qualification, designation, specialization, (D.Sc./D.Litt./Ph.D./M.Phil.etc.,)

No	Name	Qualification	Designation	No.of Years of Experience			Ph.D Students guided for the last 4years
				Industry	Teaching	Total	
1	Dr. K. B. Radhakrishnan	Ph.D	Professor & Head	2	30	32	1 completed, 2 on going
2	Prof. Dr. A. S. Abdul Rasheed	Ph.D	Professor	1	31	32	-
3	Prof. Mary Mathew	M.Tech	Professor	-	23	23	-
4	Mrs. Femina A., (<i>on deputation - QIP</i>)	M.Tech	Assistant Professor	-	15	15	-
5	Prof. Fazil A.	M.Tech	Assistant Professor	1	11	12	-
6	Prof. Saibi R.	M.Tech	Assistant Professor	-	7	7	-
7	Prof. Manikandan P. M.	M.Tech	Assistant Professor	3	2.83	5.83	-
8	Prof. Shan S	M.Tech	Assistant Professor	-	1.5	1.5	-
9	Prof. Adil Muhammed	M.Tech	Assistant Professor	-	5.5	5.5	-
10	Prof. Harsha V Haridas	M.Tech	Assistant Professor (Temporary)	-	0.5	0.5	-
11	Prof. Soumya Joy	M.Tech	Assistant Professor (Temporary)	-	0.5	0.5	-
12	Prof. Amina F	M.Tech	Assistant Professor (Temporary)	-	0.17	0.17-	-

11. List of seniorvisiting faculty : Nil

12. Percentage of lectures delivered and practical classes handled by temporary faculty

Year	Percentage of lectures	Percentage of practical classes
2012-13	-	-
2013-14	25.00	28.39
2014-15	42.97	51.72
2015-16	41.84	51.49
2016-17	27.27	42.71

13. Student-Teacher Ratio (programmewise)

Year	Sanctioned intake	No. of faculty	Student-Teacher Ratio
2012-13	-	-	-
2013-14	180	14	12.86:1
2014-15	180	14	12.86:1
2015-16	180	15	12 : 1
2016-17	180	14	12.86 : 1

14. Number of academic support staff (technical) and administrative staff:

Post	Sanctioned	Filled
Technical Staff	10	6
Administrative staff	1	1

15. Qualifications of teaching faculty with DSc/D.Litt/Ph.D/MPhil/PG.

Qualification	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Ph.D	4	4	3	3	2	2
M.Tech	3	3	7	7	9	9

16. Number of faculty with ongoing projects from a) National b) International funding agencies and grants received: Nil**17. Departmental projects funded by DST-FIST, UGC, DBT, ICSSR, etc. and total grants received**

Year	Project	Source of funding	Grant Received (Rs)
2013	Modernization of Heat Transfer Operations Laboratory	MODROBS, MHRD, Government of India	15,00,000
2015	New Carbon Nano-Catalyst Support with a Spherical Fibrous Morphology	Kerala State Council for Science, Technology and Environment	15,000

18. Research Centre/facility recognized by the University: Nil**19. Publications:**

Last Four years (Details given in Annexure)

Number of publications by faculty members (2011- 2015)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	-	-	-	1	-	10	11
2	International Conferences	-	1	5	12	2	-	20

3	National Conferences	-	12	-	-	1	-	13
4	Books	-	-	-	-	-	-	-

Number of publications by students (2011- 2015)

No	Publications	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	-	-	-	-	-	10	10-
2	International Conferences	-	-	-	11	2	-	13-
3	National Conferences	-	-	-	10			10
4	Books	-	-	-	-	-		-

20. Areas of consultancy and income generated

Year	Area of consultancy	Income generated (Rs.)
2012-13	Water analysis and testing	19,646
2013-14	Water analysis and testing	15,422
2014-15	Water analysis and testing	13,354
2015-16	Water analysis and testing	19,884
2016-17	Water analysis and testing	27,266

21. Faculty as members in a) National committees b) International Committees c) Editorial Boards

No	Name of Faculty	Membership in Committees/Professional Bodies	Editorial Boards
1.	Dr. K. B. Radhakrishnan	IChE (Life Member, former Vice Chairman and past Chairman of Thiruvananthapuram Regional Chapter, Member of executive committee), Life Member –ISTE & Society for Biotechnology India, PSC Selection Committee member, PSU Selection Committee member, Member-Expert Committee, Kerala State Pollution Control Board Environmental Awards, Member-Tehchnical Committee on review of ETP/STPs, Kerala Suchithwa Mission, Govt. of Kerala.	Reviewer (Conference editorial board)
2.	Dr. A. S. Abdul Rasheed	ISTE, PSU Selection Committee	Reviewer (Conference editorial board)

3.	Prof. Mary Mathew	IChE (Life Member), ISTE	
4.	Mrs. Femina A.	ISTE Member	
5.	Mr. Fazil A.	ISTE Member	

22. Student projects

- Percentage of students who have done in-house projects including inter departmental/ programme
- Percentage of students placed for projects in organizations outside the institution i.e. in Research laboratories/ Industry/ other agencies.

Year	Percentage of students with in-house projects	Percentage of students doing project in research laboratories/ Industry/ other agencies
2010-11	63.04	36.96
2011-12	82.86	17.14
2012-13	39.22	60.78
2013-14	54.35	45.65
2014-15	46.77	53.23
2015-16	28.57	71.43
2016-17	100	0

23. Awards/ Recognitions received by faculty and students

Academic Year	Name of Faculty	Achievements	
2012-13	Prof.Fazil A	Awarded best poster on the topic "Carbon Nanotubes Supported Silver Catalyst for Anion Exchange Membrane Fuel Cells" in the Indo-US Workshop on Electrocatalytic Materials for Fuel and Biofuel Cells organized by Banaras Hindu University, Varanasi in collaboration with Indo-US Science & Technology Forum, India during February 26-28, 2013	
2015-16	Prof.Fazil A	Innovation titled "Spherical Fibrous Carbon Nano Catalyst Support for Fuel Cell Applications" by Nithin Sebastian and Kiran Jacob has won special prize in the TECHFEST - 2016 of KSCSTE organized jointly by Kerala State Council for Science, Technology and Environment, Science & Technology Dept., Govt. of Kerala and APJ Abdul Kalam Technological University during 8-9 January 2016. Worked as the Mentor of this innovation.	
Year	Name of Activity	Name of Student	Recognition/ Awards

2016-17	'CHEMLOCK HOMES' "LAKSHYA '16" organized by GEC Kozhikode, April 2016	Ajmal Ashraf	Second Prize
	'CHEMLOCK HOMES' "LAKSHYA '16" organized by GEC Kozhikode, April 2016	Roshan I	First Prize
2015-16	Best Innovative Project Contest Conducted By Department Of Science And Technology Kerala Along With KTU And KSCSTE	Nithin Sebastian Kuncharia Kiran Abraham Jacob	Best Innovative Project Special award
	Paper Presentation at SCHEMCON' 15, MIT Academy Of Engineering, Pune	Nithin Sebastian Kuncharia Kiran Abraham Jacob	First Prize
	INTERUPTEUR, 'TATHVA' National Level Tech Fest, NIT Kozhikode, Oct/Nov, 2015	Akshay Dileep Ashraf N. Akash K.	Third Prize
	'CLUE'. "DRAV '16" organized by NIT Calicut, Kozhikode, February 2016	Ajmal Ashraf	First Prize
	"PROCESS CONTROL USING EMBEDDED SYSTEMS". "DRAV '16" organized by NIT Calicut, Kozhikode, February 2016	Fazal Rehman	Third Prize

	<p>‘CLUE’. "DRAV'16" organized by NIT Calicut, Kozhikode, February 2016</p>	Roshan I	Second Prize
	<p>‘SCI-BIZ-TECH QUIZ’. "DRAV'16" organized by NIT Calicut, Kozhikode, February 2016</p>	Rahul R	Third Prize
2014-15	<p>CHEOPROPELL O, ‘TATHVA’ National Level Tech Fest, NIT Kozhikode, Oct/Nov, 2014</p>	Abhishek J. K. Thomas Ananthakrishnan G. Yedhu Raj R. S. Jinson Mathew	First Prize
	<p>CHEMCRUZ, ‘DHYUTHI’ National Level Multifest, Government College Of Engineering Thrissur, Jan 2015</p>	Abhishek J. K. Thomas Ananthakrishnan G. Yedhu Raj R. S. Jinson Mathew	Second Prize
	<p>Interupteur, ‘Tathva’ National Level Tech Fest, Nit Kozhikode, Oct/Nov, 2014</p>	Abhishek J. K. Thomas Ananthakrishnan G. Jinson Mathew	Third Prize
	<p>AQUA-D-War, ‘TATHVA’ National Level Tech Fest, NIT Kozhikode, Nov, 2014</p>	Abhishek J. K. Thomas Ananthakrishnan G. Yedhu Raj R. S.	Third Prize
2013-14	<p>CHEQUERED FLAG, ‘TEZORO’, National Level Techno Managerial Fest, TKM College Of Engineering, Kollam, Feb 2014</p>	Abhishek J. K. Thomas Ananthakrishnan G. Yedhu Raj R. S. Jinson Mathew	First Prize

	ROCKET SCIENCE, 'TEZORO', National Level Techno Managerial Fest, TKM College Of Engineering, Kollam, Feb 2014	Abhishek J. K. Thomas Ananthakrishnan G. Yedhu Raj R. S. Jinson Mathew	Second Prize
	CAN U SOLVE IT, 'TEZORO', National Level Techno Managerial Fest, TKM College Of Engineering, Kollam, Feb 2014	Ajin Govind T. Abin O. Panicker	Second Prize
2012-13	CHEMICAL SORCERE, 'DYUTHI '12, National Level Multifest, Government College Of Engineering Thrissur, Sep 2012	Shaad K. V.	First Prize
		Abdul Ricemon	Second Prize
2011-12	CHEM CRUIZE, 'CONJURA '12, National Level Techno-Managerial Symposium, TKM College Of Engineering, Kollam, Feb 2012	Shaad K. V.	First Prize
	CHEMSOLVER, 'CONJURA '12, National Level Techno-Managerial Symposium, TKM College Of Engineering, Kollam, Feb 2012	Shaad K. V.	First Prize

	BEST PHOTOGRAPHER, 'ASTRAL'12, National Level Tech Fest, Sree Buddha College Of Engineering, Pattor, Feb, 2012	Shan S.	First Prize
	MAD CHEMISTRY, 'AURA '12, National Level Tech Fest, Government Engineering College, Thrissur, Feb 2012	Muhammed Salman K. Sajeer T. V.	Second Prize
Academic Year	Name of Student	Activities Involved	
2016-17	Ajmal Ashraf	Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMLOCK HOMES'.	
		Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMATHLON'.	
	Fazal Rehman	Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMLOCK HOMES'.	
		Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMATHLON'.	
	Roshan I	Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMLOCK HOMES'.	
	Rahul R	Participated in the techfest "LAKSHYA'16" organized by GEC Kozhikode for the event 'CHEMLOCK HOMES'.	
Davis Alphonse Abraham	Participated in the Techno Entrepreneurial meet "TES" for the event 'CANSAT- Satellite Design & Launch' workshop organized by TKM College of Engineering.		
2015-16	Ajmal Ashraf	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.	
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.	
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'Sci-Biz-Tech Quiz'.	

	Akhil Prasanna Kumar	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
	Akhilraj M	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Anakha Dilkumar	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
	Cedric S Jackson	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Davis Alphonse Abraham	Participated in the Techno Entrepreneurial meet "TES" for the event 'CANSAT- Satellite Design & Launch' workshop organized by TKM College of Engineering.
		Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Fazal Rehman	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "Process Control using Embedded Systems".
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'Sci-Biz-Tech Quiz'.
	Jihana A	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Vivek M	Participated in the techfest "AAGNEYA'16" organized by GEC Barton Hill for the event 'DEBATE ENGLISH'.
Meenakshi Priyadarsini	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.	

	Mukesh Muraleedharan	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
	Nikitha K M	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Piyush Oonnikrishnan	Participated in the techfest "AAGNEYA'16" organized by GEC Barton Hill for the event 'DEBATE ENGLISH'.
	Pooja R	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
	Rijo C Andrews	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
	Roshan I	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'Sci-Biz-Tech Quiz'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'. Secured second position
	Sreelakshmi K A	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Sruthy C Nair	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".
	Swathinath P Unnithan	Participated in the workshop on "HAPTIC ROBOTIC ARM" organized by GEC Barton Hill, Trivandrum and conducted by Skill Rex Technology.
	Rahul R	Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'Sci-Biz-Tech Quiz'.
		Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the event 'CLUE'.
Participated in the techfest "DRAV'16" organized by NIT Calicut, Kozhikode for the workshop on "ASPEN Plus".		

24. List of eminent academicians and scientists/ visitors to the department

No.	Date	Name of academician/scientist Institution/industry	Purpose of visit
1	29.08.2011	Mr. Shaneeth M., Scientist, VSSC, Thiruvananthapuram	Invited lecture
2	05.09.2013	Dr. Gangan Pratap, Outstanding Scientist, (Former Vice Chancellor, CUSAT),NIIST Thiruvananthapuram	Invited lecture
3	18.11.2013	Dr. Ajit Haridas, Principal Scientist & Head, Environmental Tech. Div., NIIST (CSIR), Thiruvananthapuram	Invited lecture
4	19.11.2013	Dr. P.C. Sabumon, Professor, VIT University, Chennai	Invited lecture
5	20.11.2013	Dr. Ligy Philip, Professor, IIT Chennai	Invited lecture
6	21.11.2013	Dr. B.S.Murthy, Professor, IIT Chennai	Invited lecture
7	21.11.2013	Dr. Krishnakumar B., Scientist,NIIST, Thiruvananthapuram	Invited lecture
8	22.11.2013	Dr. Shihabudheen M. Maliyekkal, Associate Professor, VIT University, Chennai Campus	Invited lecture
9	22.11.2013	Dr. Manoj Narayanan, Assistant Professor, Department of Biotechnology and Biochemical Engineering, Sree Buddha College of Engineering, Alapuzha	Invited lecture
10	28.11.2013	Er. K. Bhanu, Consultant, Titanium Sponge Unit, KMML, Chavara, Kollam	Invited lecture
11	28.11.2013	Sri. K.K.Vasu, Principal (Rtd), Kelappaji College of Agricultural Engineering & Technology, Malapuram	Invited lecture
12	29.11.2013	Prof. Nirmal Jacob, Associate Professor, CUSAT, Cochin	Invited lecture
13	16.12.2013	Dr. K. Krishnaiah, Emeritus Professor, Department of Chemical Engineering, IIT Chennai	Invited lecture
14	17.12.2013	Dr.T.S. Anirudhan, Professor, Department of Chemistry, University of Kerala	Invited lecture
15	18.12.2013	Dr. P. Raghavan, Dy Director (Rtd.)NIIST, Thiruvananthapuram	Invited lecture
16	19.12.2013 16.10.2014	Dr. K.V.Narayanan, Former Principal, Government Engineering College, Thrissur	Invited lecture
17	19.12.2013 17.10.2014	Dr. T.R.Sreekrishnan, Professor & Head, Department of Biochemical Engineering and Biotechnology, IIT Delhi	Invited lecture

18	08.02.2014	Mr. Venugopal Nair, Deputy Chief Controller of Explosives, PESO, Madurai, Tamilnadu	Invited lecture
19	16.10.2014	Prof. (Dr.) V.N.Rajasekharan Pillai, Executive Vice President and Principal Secretary, Science and Technology Department, Government of Kerala	Inauguration ICACE TKMCE '14
20	16.10.2014	Prof.(Dr.) M.S. Ananth, Distinguished Professor, IIT Mumbai, Mumbai & Former Director, IIT Chennai	Address, ICACE TKMCE '14
21	16.10.2014	Mr. T. P. Sreenivasan, Vice Chairman and Executive Head, The Kerala State Higher Education Council, Government of Kerala	Chief guest ICACE TKMCE '14
22	16.10.2014	Dr. T. K. Abraham , Professor, Department of Biotechnology and Biochemical Engineering, Sree Buddha College of Engineering, Alapuzha	Session Chair, ICACE TKMCE '14
23	17.10.2014	Dr. Sriram Devanathan, Professor, Amrita University, Coimbatore	Session Chair, ICACE TKMCE '14
24	17.10.2014	Dr. Giridhar R. Nair, Former Professor, Waikato University, New Zealand	Session Chair, ICACE TKMCE '14
25	17.10.2014	Dr. M.L.P. Reddy, Chief Scientist and Head, Material Science and Technology Division, NIIST, Thiruvananthapuram	Session Chair, ICACE TKMCE '14
26	18.10.2014	Prof. (Dr.) Fawzi Banat, Acting Chair, Chemical Engineering Department, Petroleum Institute, Abu Dhabi	Invited lecture
27	18.10.2014	Dr. John Tharakan, Professor, Chemical Engineering, Howard University, Washington, USA	Invited lecture
28	18.10.2014	Prof. (Dr.) A.R. Balakrishnan, Professor, Department of Chemical Engineering, IIT Chennai	Invited lecture
29	18.10.2014	Prof. (Dr.) Murugesan Tanabalan, Department of Chemical Engineering, Universiti Teknologi, Petronas, Malaysia	Invited lecture
30	18.10.2014	Prof. (Dr.) G. Sugilal, Scientist & Head, PSDS & Professor, Bhabha Atomic Research Centre, Mumbai	Invited lecture
31	18.10.2014	Prof. (Dr.) C.M. Narayanan, Professor, Department of Chemical Engineering, NIT, Durgapur	Invited lecture
32	18.10.2014	Prof. (Dr.) Vivek Polshettiwar, Professor, Nano-Catalysis Laboratory, Department of Chemical Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai	Invited lecture

33	11.08.2015	Dr. P.A.Solomon, Professor & Head, Department of Chemical Engineering, GEC Thrissur	Invited lecture
34	12.08.2015	Prof. Manilal A. M., Assistant Professor, Department of Chemical Engineering, GEC, Thrissur	Invited lecture
35	08.09.2015	Mr. Prasanth Srinivas, Director, Petrocil Engineers and Consultants	Invited lecture
36	30.11.2015	Prof. (Dr.) V. K. Damodaran, Director General, Experience Foundation & Director General, INGCORE, Thiruvananthapuram	Key Note Address on FDP.
37	30.11.2015	Dr. A. Vijayakumari, Associate Professor, Amrita Vishwa Vidyapeetham University, Coimbatore.	Invited lecture
38	01.12.2015	Sri. Jayachandran K, AGM (Technical), FACT, Kochi	Invited lecture
39	01.12.2015	Dr. Udayabhaskar Reddy, Associate Professor, Department of Chemical Engineering & Materials Science, Amrita Vishwa Vidyapeetham, Coimbatore	Invited lecture
40	02.12.2015	Dr. Raghuram Chetty, Associate Professor, Department of Chemical Engineering, IIT Chennai.	Invited Lecture
41	02.12.2015	Dr. R. Harikumar, Head – Education, Training & Research Division, Energy Management Centre, Department of Power, Government of Kerala	Invited lecture
42	03.12.2015	Dr. P. Chandra Mohanan Nair, Former Principal, CET & Principal, Valiyakoonambaikulathamma College of Engineering, Parippalli	Invited lecture
43	04.12.2015	Dr. K.P. Vijaya Kumar, Emeritus Professor, Dept of Physics, Cochin University of Science and Technology, Cochin	Invited lecture
44.	31.03.2016	Mr. Sujithkumar .R, Head, PRLD, VSSC Trivandrum	Invited Lecture
45.	25.07.2016	Mr. Levin G, Group Director, Propulsion Group, VSSC, Trivandrum	Invited Lecture
46.	25.07.2016	Dr. T. Theivasanthi, International Research Centre, Kalasalingam University, Krishnankoil	Invited Lecture
47.	26.07.2016	Dr. G. Madhu, Professor & Head, School of Safety & Fire Engineering, CUSAT, Kochi	Invited Lecture
48.	26.07.2016	Mr. Ansari, Senior Prinicpal Scientist, Environmental Technology Division, NIST (CSIR), Trivandrum	Invited Lecture
49.	27.07.2016	Dr. P.M.C. Nair, DGM (Rtd.), HLL Lifecare Ltd. Trivandrum	Invited Lecture

50.	27.07.2016	Dr. Sankara Narayana Swamy, Professor, Dept. of Mechanical Engineering, NIT Trichy	Invited Lecture
51.	28.07.2016	Dr. George Mathew, Associate Professor, School of Safety & Fire Engineering, CUSAT, Kochi	Invited Lecture
52.	29.07.2016	Dr. Renjith V. R, Associate Professor, School of Safety & Fire Engineering, CUSAT, Kochi	Invited Lecture
53.	01.09.2016	Shri. M C Dathan, Scientific Adviser to the Chief Minister, Govt. Of Kerala, (Former Director, VSSC Trivandrum)	Keynote Address, Technical Symposium

25. Seminars/ Conferences/ Workshops organized & the source of funding

Year	Seminar/ Conference/ Workshop	Title	Source of funding	Organized by
2011-12	Industrial Lecture	“Energy, Environment & Fuel Cell Technology”	TEQIP II	Dr. K. B. Radhakrishnan
2013-14	Industrial Lecture	Industrial Lecture on “5 th Paradigm”	TEQIP II	Dr. K. B. Radhakrishnan
	FDP	“Water & Wastewater Management”	TEQIP II	Prof. Femina A. & Prof. Fazil A.
	Workshop	“Safety Practices in Laboratory Experiments and Maintenance”	TEQIP II	Dr. A. S. Abdul Rasheed & Prof. Fazil A.
	FDP	“Separation Techniques in Process Industries”	TEQIP II	Prof. Mary Mathew & Prof. Saibi A.
	Workshop	“Safety in Static & Mobile Pressure Vessels”	TEQIP II	Dr. K. B. Radhakrishnan
2014-15	International Conference	“Advances in Chemical Engineering & Technology”(ICACE TKM '14)	TEQIP II, DST, KSCSTE	Dr. K. B. Radhakrishnan
2015-16	Workshop	Piping and Instrumentation Diagrams	IChE	Dr. K. B. Radhakrishnan
	Workshop	Simulation using ASPEN	IChE	Dr. K. B. Radhakrishnan
	FDP	Renewable Energy : Policies and practices	TEQIP II	Dr. K. B. Radhakrishnan &

				Prof. Fazil A
	Workshop	Industrial Talk on “Science Behind Natural Phenomena: Analysis and Interpretations”	TEQIP-II	Dr.K.B. Radhakrishan & Prof. Shan. S
	Workshop	Workshop on “Perspective Prospects And Problems In Value Addition Of Beach Sand Minerals”	TEQIP-II	Dr. K. B Radhakrishnan & Prof. Adil Muhammed
2016 -17	FDP	Health Safety and Enviromental Management Systems	TEQIP-II	Prof. Mary Mathew & Prof. Shan. S

26.Student profile programme/ course wise:

Students are admitted to this programme from rank list of Common Entrance Examination conducted by the Commissioner of Entrance Examinations, Government of Kerala.

Academic Year	Selected (Regular & Lateral Entry in 2nd year)	Enrolled		Pass Percentage
		Male	Female	
2011-12	48	34	13	60.41
2012-13	74	57	17	71.62
2013-14	73	45	28	78.08
2014-15	62	45	17	88.71
2015-16	73	46	27	79.86
2016-17	75	52	23	-

27. Diversityof Students

Year	Percentage of students from the same state	Percentage of students from other states	Percentage of students from abroad
2011-12	100	0	0
2012-13	97.26	2.74	0
2013-14	98.65	0	1.35
2014-15	98.68	1.32	0
2015-16	100	0	0
2016-17	100	0	0

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services, etc.?

Year	Students cleared GATE	Students cleared CAT
2010-11	-	-
2011-12	-	-
2012-13	15	1
2013-14	24	1
2014-15	9	-
2015-16	10	-
2016-17	10	-

29. Student progression

Student progression	Against % enrolled					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
UG to PG	-	21.62	27.14	12.90	12.68	
PG to Ph.D	-	-	-	-	-	-
Ph.D to Post-Doctoral	-	-	-	-	-	-
Employed, Campus selection.	20.41	12.16	12.86	12.90	32.39	34.66
Other than campus recruitment	-	22.97	21.43	19.35	12.68	-
Entrepreneurship/Self-employment	2.04	-	-	-	-	-

*Based on year of completion of course

30. Details of Infrastructural facilities

a) Library

Well-equipped department library with floor area 55 m² containing reference and text books, previous years question papers and project/seminar/industrial training reports. Photocopy machine is installed for the convenience of students.

No	Description	Quantity in numbers	
		Titles	Volumes
1	Books for students circulation (Central Library)	2969	9705
2	Books in the department library	790	1452
3	Technical Journals (Central Library)	National	12
		e-journals	188
4	Technical magazines subscribed (Central Library)	6	
5	News Papers (Central Library)	10	
6	Educational CDs (Central Library)	500	
7	Power point Presentations (Central Library)	500	

b) Internet facilities for Staff & Students

Department computing facility is provided with 37 computers having internet connectivity. In addition to this unlimited Wi-Fi access at 100 Mbps bandwidth is provided to all registered personal laptops of faculty as well as students.

c) Class rooms with ICT facility

- All the class rooms are equipped with facilities like white board, green board, and lecture stand with audio visual facility.
- All class rooms are provided with multimedia projector and Wi-Fi connectivity.
- Internet facility is provided in the faculty room and computing facility room.

d) Laboratories

- Well-equipped labs are exclusively allotted for all courses specified in the curriculum.
- Experimental set up under the supervision of qualified/trained technicians for the smooth conduct of experiments.
- Each laboratory is provided with adequate seating facility for students to do the data analysis.
- All the laboratories are made available to the students on request for project work even after the regular working time.

No.	Laboratory	Number of students (Area m ²)
1	Chemical Technology Laboratory	38(150)
2	Mineral Processing and Particle Technology Laboratory	38(150)
3	Heat Transfer Operations Laboratory	38(200)
4	Mass Transfer Operations Laboratory	38(200)
5	Reaction Engineering Laboratory	38(150)
6	Software Laboratory	50(100)
7	Process Control Laboratory	40(85)

The batch size (3 to 4 per batch) of the students is such that they can comfortably perform the experiments on each instrument. The labs are designed with the proper ventilation and sufficient lighting. The maintenance of the experimental setup is done by the technical staff in the department and in the college. Major breakdown is rectified with the help of competent technicians from external agencies.

31. Number of students receiving financial assistance from college, university, Government or other agencies:

Name of the Scholarship	No of students						Total
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
MCM from Ministry of Minority Affairs, Central Government	11	9	20	31	34	30	135
TKM-MCM Institute Level Scholarship	7	6	7	9	8	8	45

Egrantz from the Govt of Kerala, SEBC & FC Students	64	54	44	59	28	36	285
Egrantz from the Govt of Kerala SC/ST/OEC	25	25	24	23	30	34	161
Central Sector Scholarship (Central Government General Student Scholarship)	13	16	14	9	15	3	70

32.Details on student enrichment programmes (special lectures/ workshops/ seminar) with external experts

Year	Programme	Guest or Speaker
2011-12	Industrial Lecture on “Energy, Environment & Fuel Cell Technology”	Mr. Shaneeth M., Scientist, VSSC, Thiruvananthapuram
2013-14	Industrial Lecture on “5 th Paradigm”	Dr. Gangan Pratap, Outstanding Scientist, (Former Vice Chancellor, CUSAT),NIIST Thiruvananthapuram
	Workshop on “Safety Practices in Laboratory Experiments and Maintenance”	Er. K. Bhanu, Consultant Titanium Sponge Unit, KMML, Chavara, Kollam. Sri. K.K.Vasu, Principal (Retired),Kelappaji College of Agricultural Engineering & Technology, Tavanur Prof. Nirmal Jacob, Associate Professor, CUSAT, Ernakulam Dr. Premchand Prabhu, Casualty Medical officer, Benziger Hospital, Kollam
	Workshop on “Safety in Static & Mobile Pressure Vessels”	Mr. Venugopal Nair, Deputy Chief Controller of Explosives, PESO, Madurai, Tamilnadu.
2015-16	Workshop on “ Piping and Instrumentation Diagrams”	Mr. Prasanth Srinivas Director, Petrocil Engineers & Consultants Pvt. Ltd
	Add on course on “Computer Aided Process Simulation and Design”	Dr. P.A.Solomon, Professor & Head, Department of Chemical Engineering, GEC Thrissur. Prof. Manilal A. M., Assistant Professor, Department of Chemical Engineering, GEC Thrissur.
	Industrial Talk on “Science Behind Natural Phenomena: Analysis and Interpretations”	Mr. Sujithkumar R Head, PRLD, VSSC, Trivandrum

	Workshop on “Perspective Prospects And Problems In Value Addition Of Beach Sand Minerals”	Sri. Ragavan K G.M, Travancore Titanium Products Limited, Thiruvananthapuram A.G.M, Kerala Minerals and Metals Limited,Chavara, Kollam Sri. Madhusoodanan Koovaprath Managing Director, Travancore Titanium Products Limited, Thiruvananthapuram Sri. Janarthan A J G.M & Unit Head, Indian Rare Earth Limited, Kollam
	Add on Course On “Distributed Control System(DCS) & Programmable Logic Controller (PLC) Overview”	Mr. Sandeep V S, Senior Associate Yokogawa Mr. Naveen Parameswar Senior Associate Yokogawa Mr. Shijith S Shaji Associate Consultant Yokogawa Mr. Binil Jose Associate Consultant Yokogawa
2016-17	Expert talk and interaction on“Job Prospects in Petroleum Sector”	Mrs. Shaheena Nizar, Consultant Mr. Aravindh Nair, Process Engineer KNPC
	Workshop on “Process Engineering: Skills and Practices”	Mr. Venkatesh.M, DGM, Tata Projects, Hyderabad

33. Teaching methods adopted to improve student learning

Various pedagogical techniques are adopted to improve student learning as mentioned below:

- Traditional board and chalk method: typically for courses which are analytical, have mathematical derivations, and conceptual deduction of equations.
- Use of multimedia in delivery of lectures for other subjects
- Organizing expert lectures and discussions with them
- Organizing study tour, educational tour and site visits
- Continuous assessment of student’s performance through group presentations
- Continuous assessment and evaluation of student’s performance through individual presentations for seminar/courses
- Live lectures on video conferencing/distance learning mode, webinars
- Interactive teaching modes such as gesture based, group discussions and brainstorming sessions

Pertaining to a category of the course (theory, laboratory practice, analytical, diagrammatic, demonstrative, behavioural / elective, core, etc.) the faculty at his/her liberty, chooses to go

for a typical blend of the above mentioned styles of instruction. Majority of senior faculty have undergone the management development program and junior faculty have undergone pedagogical training. The webinars, state-of-the-art seminars through video conferencing enable interaction of students with experts from different pioneer academic institutions.

The following are the various content delivery methods used to deliver the courses:

- Lecture interspersed with discussions
- Tutorial
- Laboratories
- Lab Visit
- Presentations/Seminars
- Assignment
- Projects
- Industrial Visit
- Industrial Training
- Peer Learning
- Learning Resources sharing
- The access to e-content in NPTEL has been provided (NPTEL <http://nptel.iitm.ac.in>)
- Classes in selective subjects were provided under Quality Enhancement in Engineering Education (QEEE) program in TEQIP institutions. These online classes handled by Professors from premier institutions such as IITs, NITs etc., are being offered to the students of the department.
- Uploading the class notes and presentations in 'Eazy Campus', the online academic monitoring System of the institution is being practiced.
- IEEE explorer available in Central Library
- e-books available in digital library

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

NSS: The National Service Scheme (NSS) is an All India Scheme initiated by the Union Ministry of Education and implemented at the colleges through the universities. This is an educational program in imparting education through Community Service. This helps the youth to build their character, maintain discipline, create a sense of dignity of labour and instill their social consciousness. The students of the department are members of this organization and are enriched by getting involved in the activities with societal obligations. The students use this forum to share their technical knowledge on matters directly affecting the society at large.

Prof Fazil A of the Department served as the Programme Officer of National Service Scheme from October 2007 to June 2011. During his tenure he has organized various activities aimed at developing commitment among the students towards the society. The Programs organized under his supervision includes Blood Donation Camps, Community Medical Camps, Awareness Campaigns etc.

Prof Fazil also served as a member of District Level Disaster Management Task Force constituted by Corporation of Kollam, from March 2008 to June 2011.

Prof. Shan. S of the Department has been handling the role Programme Officer of National Service Scheme Unit No. 547 since 3rd March 2016. He has been successful in organizing various student programmes conforming with the motto of National Service Scheme. Some of the programs worth mentioning include:

PUNARJJANI Project: Re-creation of assets in Kollam District Hospital. Assets worth of Rs 33 lakhs was created by the students during the 7 day program.

Blood Donation Camps in association with IMA. These camps ensured participation from female students and aimed at spreading a message and creating awareness regarding the stigma associated with blood donation especially among females.

Water conservation programmes: Student Volunteers created rain-water recharge pits at selected locations within the campus and created awareness among the community regarding impending water crisis and the need for water conservation.

Observation of days of National as well as International importance: Various competitions as well as awareness programmes associated with Environmental Day, Independence Day, Republic Day, Ozone Day, International Yoga Day etc. are conducted every year.

Students of the Chemical Engineering Department actively participate and take the lead in all the programmes organized by the National Service Scheme without compromising on their academics.

Kochi Refineries Ltd (KRL)-TKM-ENCON-Club:The energy conservation club promoted by BPCL - Kochi Refineries Ltd , “KRL -TKM-ENCON-Club” is functioning in the department. The club organizes programmes to disseminate the message of energy conservation among the students. The club takes initiatives to arrange societal interaction programs in residential organizations and Kudumbasree Units. The club was selected as the best in the state in the year 2010 by BPCL-Kochi Refinery.

Programs organized under ENCON club include:

- Awareness program on Waste Management
- Conduct of Energy Conservation Rally
- Workshop on reuse of plastic bottles in masonry.

Students of TKMCE for the Empowerment of People and Society (STEPS): STEPS organizes blood donation, social awareness campaigns, charity programmes and most importantly elevating the status and providing education to the poor and orphaned children in the city. With its weekly programmes and classes with uncompromising efficiency STEPS have earned a place in the heart of the public and is making itself visible throughout Kerala.

Students of the department have taken leading roles in the conduction of various reach out programmes under STEPS. Aardra – a state wide stem cell donor registry drive and Sukrita 2016- a social welfare initiative using technology to assist and empower the differently abled are few out of the widely appreciated programmes.

Mr. Anoop Markose, student of 2011-15 batch donated stem cells and became the first stem cell donor of the college through the NGO "DATRI"

Prof. Shan. S had served as a Technical Expert to ODF Programme of Kerala Schuchithwa Mission.

35. SWOC analys is of the department and future plans

Strengths

- Dedicated management ensures prompt fulfillment of requirements and redressal of grievances
- Disciplined conduct of programs in the department
- College Trust makes contribution to the budget

- Qualified and motivated faculties with sound infrastructure facilities help in enhanced student learning
- Well organized functions of the teaching and learning process
- Excellent extra & co-curricular activities and professional society & alumni activities
- Established and reliable collaboration between industry and academia
- Diverse students from various parts of the state as well as from other states in the country and abroad
- Good quality students with top ranks admitted through state entrance examination

Weaknesses

- Project funding has to be improved
- Post- graduate programmes need to be introduced

Opportunities

- Increased multidisciplinary research collaboration within the institute among the departments
- Collaborative research with other research institutes/ industries and faculties of similar institutions
- Enhanced collaboration of industry partnership in academics

Challenges

- Lack of opportunities in core chemical engineering sector within the state leading to diversion of students to IT sector
- Promotion of entrepreneurial initiatives among students in core sectors

Future Plans

- Carry out long-term research projects in collaboration with industries leading to active research
- Introduce Post Graduate courses in Chemical Engineering and allied fields
- Take necessary actions to improve UG pass percentage
- Establish close ties with foreign universities for enhanced exchange of expertise
- Enhance industrial consultancy service

**DEPARTMENT OF ARCHITECTURE
EVALUATIVE REPORT**

1: Name of Department: Architecture

2: Year of Establishment: 1985

3: Name of Programme /Courses offered. : B. Arch

4. Names of Interdisciplinary courses and the departments/ units involved:

2008 Scheme			
No	Subjects	Semester	Department involved
1	Structural Mechanics I	I	Civil Engineering
2	Geometrical Drawing	I	Civil Engineering
3	Mathematics	I	Mathematics
4	Structural Mechanics II	III	Civil Engineering
5	Surveying and Leveling	III	Civil Engineering
6	Structural Mechanics III	IV	Civil Engineering
7	Building Services: Water Supply & Sanitary Engineering	V	Civil Engineering
8	Structural Mechanics IV	V	Civil Engineering
9	Humanities	V	Humanities
10	Estimation and Specification	VI	Civil Engineering
11	Design of RCC Structures	VI	Civil Engineering
12	Building Services : Electrical Services	VI	Electrical Engineering
13	Building Services : HVAC	VI	Mechanical Engineering
14	Advanced Structural Systems	VIII	Civil Engineering
2013 Scheme			
15	Geometrical Drawing	I	Civil Engineering
16	Structural Design I	I	Civil Engineering
17	Mathematics	I	Mathematics
18	Surveying and Leveling	I	Civil Engineering
19	Humanities	III	Humanities
20	Structural Design II	III	Civil Engineering
21	Estimation and Specification	IV	Civil Engineering
22	Building Services I Plumbing and Sanitation	IV	Civil Engineering
23	Structural Mechanics III	IV	Civil Engineering
24	Building Services II – Electrification	V	Electrical Engineering
25	Building Services III HVAC	V	Mechanical Engineering
26	Structural Design IV	V	Civil Engineering
27	Structural Design V- Adv. Structural Systems	VI	Civil Engineering
2016 KTU scheme			
28	Theory of Structures I	I	Civil Engineering
29	Mathematics	I	Mathematics

30	Communication skills and Techniques	I	English
31	Theory of Structures II	II	Civil Engineering
32	Theory of Structures III	III	Civil Engineering
33	Theory of Structures IV	IV	Civil Engineering
34	Building Services (Plumbing and Sanitation)	IV	Civil Engineering
35	Theory of Structures V	V	Civil Engineering
36	Building Services (Electrical and Lighting)	V	Electrical Engineering
37	Theory of Structures VI	VI	Civil Engineering
38	Building Services (HVAC)	VI	Mechanical Engineering
39	Estimation, Specification and Budgeting	VIII	Civil Engineering

5. **Annual/ semester/ choice based credit system:** Semester based credit system

6. **Participation of the department in the courses offered by other departments:** Nil

7. **Courses in collaboration with other universities, industries, foreign institutions, etc.:** Nil

8. **Details of courses/ programmes discontinued (if any) with reasons:** Nil

9. Number of teaching posts

Designation	Sanctioned	Filled
Professors	2	2
Associate Professors	6	6
Asst. Professors	16	16

10. Faculty profile with name, qualification, designation, specialization, (D.Sc. /D.Litt. /Ph.D./M.Phil.etc.)

No.	Name	Qualification	Designation	Specialization	Years of Experience	Ph.D, student guided last 4years
1.	Prof. N. Ramaswamy (on leave)	B.Arch, M.Arch	Associate Professor	Conservation	29	
2.	Prof. Jolly John	B.Arch, MCP	Professor	Planning	27	
3.	Dr. Sumam Panjikkaran	B.Arch, M.Housing, PhD	Associate Professor	Housing	24	

4.	Prof. Nizar S. A.	B.Arch, MURP	Associate Professor	Planning	22	
5.	Dr. Annie John	B.Arch, MCP, Ph. D	Associate Professor	Planning	21	
6.	Dr. Dili A. S.	B.Arch, M. Tech, Ph.D	Professor	Construction Management	18	2
7.	Dr. Santhosh Kumar K.G.	B.Arch, M.Arch, Ph. D	Associate Professor	Conservation	12	
8.	Prof. Ayyappan K.A.	B.Arch, M.Arch	Associate Professor	Conservation	11	
9.	Prof. Mahesh Nadarajan	B.Arch	Assistant Professor	Architecture	18	
10.	Prof. Subhash Varma	B.Arch	Assistant Professor	Architecture	14	
11.	Prof. Poornima Kurup	B.Arch, M. Tech	Assistant Professor	Construction Management	11	
12.	Prof. Deepa L.	B.Arch, M. Tech	Assistant Professor	Transportation Planning	11	
13.	Prof. Meena Girishkumar	B.Arch	Assistant Professor	Architecture	11	
14.	Prof. Gadhi M.	B.Arch, M.Arch	Assistant Professor	Architecture	8	
15.	Prof. Surya P. S.	B.Arch, M.Arch	Assistant Professor	Urban Design	3	
16.	Prof. Parvathy Sagar	B.Arch, M.Arch	Assistant Professor	Conservation	3	
17.	Prof. Sambath R.D.	BFA, MFA, UGC-NET	Assistant Professor	Visual Communication	3	
18.	Prof. Hudha Abdul Salam	B.Arch, M.Arch	Assistant Professor	Architecture	1 yr	
19.	Prof. Haritha C.	B.Arch, M.Arch	Assistant Professor	Sustainable Architecture	1 yr	
20.	Prof. Shahanaz	B.Arch, M.Arch	Assistant Professor	Urban Design	1 yr	
21.	Prof. Jayakrishnan G.	B.Arch, M.Tech	Assistant Professor	Construction and Project Mgmt	1 yr	
22.	Prof. Jonu	B.Arch, M.Planning	Assistant Professor	Urban Planning	1 yr	
23.	Prof. Sangeeth	B.Arch, M.Planning	Assistant Professor	Transportation Planning	1 yr	
24.	Prof. Lakshmi	B.Arch, M.Arch	Assistant Professor	Urban Design	1 yr	
25.	Prof. Anitta Philip	B. Arch	Assistant Professor 2014-16 (Temporary)	Architecture	2	
26.	Prof. Soumya N.	B. Arch	Assistant Professor 2014-16 (Temporary)	Architecture	2	
27.	Ar Deepu Bharadan	B. Arch	Assistant Professor 2014-16	Architecture	2	

			(Temporary)			
28	Ar A. Goutham	B. Arch	Assistant Professor 2014-16 (Temporary)	Architecture	1	
29	Ar Sreekanth	B. Arch	Assistant Professor 2014-16 (Temporary)	Architecture	1	
30	Prof. Abitha S. Thampi	M. Arch	Assistant Professor 2015-16 (Temporary)	Architecture	1	
31	Prof. Meera S.	M. Arch	Assistant Professor 2016 Jan – May 2017 (Temporary)	Architecture	6 months	
32	Prof Vidyasagar	M. Arch	Assistant Professor 2017- (Temporary)	Conservation	2 months	
33	Prof Sunena Abdul Haq	M. Arch	Assistant Professor 2017- (Temporary)	Conservation	2 months	

11. List of senior visiting faculty

Ar. Asha Harish, (Practising Architect), Asha Harish Associates, Kollam
 Ar. Ayyappan G, (Practising Architect)
 Ar. Deepu Bharadan, (Practising Architect)
 Ar Shyna Rajesh (Practising Architect)
 Ar Mathew Abraham (Practising Architect)

12. Percentage of lectures delivered and practical classes handled by temporary faculty

Year	2012-13	2013-14	2014-15	2015-16	2016-17
Number	3	3	5	5	1
Percentage	17.14%	17.14%	27.4%	27.4%	5.7%

13. Student-Teacher Ratio (programme wise):

Academic Year	Sanctioned intake	Faculty strength	Student teacher ratio
2016-17	80	24	16:1
2015-16	80	17	18:1
2014-15	80	17	15:1
2013-14	80	16	12:1
2012-13	40	16	10:1
2011-12	40	16	10:1

14. Number of academic support staff (technical) and administrative staff; sanctioned and filled

Description	Sanctioned	Filled
Technical Support staff	3	3

15. Qualifications of teaching faculty with DSc/D.Litt/Ph.D/MPhil/PG.

Qualification	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
UG	4	3	3	3	3	3	1
PG	11	12	12	11	11	10	19
Ph. D	1	1	1	2	3	4	4

16. Number of faculty with on -going projects from a)National b)International funding agencies and grants received:

Faculty	Project title	Year	Funding agency	Amount (Rs)
Prof. Jolly John	Acoustic Design of School Buildings: A Scientific evaluation of acoustic environments of secondary and higher secondary schools in Kollam.	2013-16	Kerala State Council for Science, Technology and Environment (KSCSTE)	3,39,350

17. Departmental projects funded by DST-FIST;UGC, DBT, ICSSR, etc. and total grants received:

Project title	Year	Funding agency	Amount (Rs)
Modernization of Architectural Acoustics Lab	2012-15	AICTE-MODROB	8,50,000/-

18. Research Centre/ facility recognized by the University:

Research Centre: Nil

Research (Kerala University approved guide): Dr. Dili A S, Professor.

19. Publications:

1. Number of publications by Faculty (2011- 2015)

(Details given in Annexure)

No	Publications	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1	Refereed Journals	2	4	6			12
2	International Conferences	-	1	1			2
3	National Conferences				1	1	2

2. Number of Publications by students (2013-2017)

20. Areas of consultancy and income generated

Faculty	Nature of Consultancy	Sponsoring Agency	Income generated
Dr. Dili A. S.	Up gradation of AES in the Building Science Lab.	EMCON, Cochin	Rs 2,50,000/-
Dr. Dili A. S.	Up gradation of AES in the Building Science Lab.	EMCON, Cochin	Rs 5,00,000 worth

			upgradation
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21. Faculty as members in

a) National committees b) International Committees c) Editorial Boards

No.	Faculty	Memberships	Editorial Boards
1	Dr. Sumam Panjikaran	COA Inspection team.	
2	Dr. Dili A. S.	Subject Expert – Doctoral Committee of University of Kerala. Project Evaluator- KSCSTE.	1. Editorial Board Member, Journal Pub, India. 2. Reviewer of Elsevier Journals – Building and Environment, Energy and Buildings and Frontiers in Architectural research. 3. Reviewer of Springer Journal- Environment Development and Sustainability. 4. Reviewer of Taylor and Francis Journal- International Journal of Sustainable energy.
3.	Dr. Annie John	Council of Architecture Inspection team.	

22. Student projects

a) Percentage of students who have done in-house projects including inter departmental/programme.

Programme/ Course	2016-17		2015-16		2014-15		2013-14		2012-13	
	I*	O*	I*	O*	I	O	I	O	I	O
Architectural Design Thesis during 10 th semester.	100	-	100	-	100	-	100	-	100	-

*I – inter departmental; O – Research lab

b) Percentage of students placed for projects in organizations outside the institution i.e.in Research laboratories/Industry/ other agencies.

Programme/ Course	2016-17		2015-16		2015-14		2014-13		2013-12	
	I*	O*	I*	O*	I*	O*	I	O	I	O
Practical Training under a registered architect/firm during 7 th semester	-	100	-	100	-	100	-	100	-	100

*I – inter departmental; O – Research lab

c. Percentage of students placed outside

23. Awards/ Recognitions received by faculty and students

Faculty	Award
Dr. Dili A. S.	IIA State Award of Excellence in Architecture 2014 (commendation). National Professional Excellency award 2014.
Prof. Haritha C.	IIA Award, Young Architects Award 2016 and VanithaVeedu Award 2016 JK award – IIA Journal March 2017

Prof. Dili A.S.	Certificate of reviewing, Elsevier Building and Environment, March 2015
Prof. Dili A.S.	Certificate of reviewing, Elsevier Energy and Buildings, January 2016
Students	Award
Carol Philip	University First Rank for B.Arch Degree Exam (2011-16 batch)
Miria Rose Jacob	University Second Rank for B.Arch Degree Exam (2011-16 batch)
LekshmyHirandas	University Fourth Rank for B.Arch Degree Exam (2011-16 batch)
Gayathri	Shortlisted in Zonal Jury for NIASA Thesis Awards for Excellence 2016 (2011-16 batch)
Akhil Murali	National Balshree Award for Excellence in the field of creative art, New Delhi, 2015
Anoop Sukumaran	NASA Students Scholarship for 2014-2015, at MIDAS Chennai-, best outstanding student architect in the national level, 2015
Rohith P.V.	THRISSUR 2014 organized by IIA THRISSUR chapter, Design competition winner, 2014-15
Anoop Sukumaran, Babitha Mohammed	INDIAN GREEN BUILDING COUNCIL (IGBC) GREEN DESIGN COMPETITION- Jury commendation award winners, 2014-15
Rasool and Gayathri of 2011-16 batch	S10 Thesis Projects shortlisted for NIASA Best Thesis Awards 2016 Zonal Jury
Society of Students of Architecture, TKMCE	Louis Kahn trophy special mention for the documentation of Satelmond Palace, Thiruvananthapuram in the 58 th Convention of NASA held at G.C. Patel Institute of Architecture, Surat, Jan-Feb. 2016 "GRIHA" trophy special mention for Sustainable School Design in the 58 th Convention of NASA held at G.C. Patel Institute of Architecture, Surat, Jan-Feb. 2016
S7 2016	INTACH Award for Excellence in Documentation 2016 – Special mention for documentation of Thazathangady settlement, Kottayam
Kailash Unnikrishnan	Listed among the top 15 in Writing Architecture for the theme "Revolution in Architecture" in the 58 th Convention of NASA held at G.C. Patel Institute of Architecture, Surat, Jan-Feb. 2016
Haritha N. (S5 2016)	Second prize in the Kerala University Chess championship and got selected to Kerala university team.
Adith Blessey, Aravind V. Saranya A.S. Anu Sam, Deepend V.K., Sreedevi Raj, Kavia Satheesh, Sithara, Limna, Naomi, Amal krishna, Tony Alex, Vishnu P.S.	Competitions at ARCHULT -16 at NIT Trichy from 11 th to 13 th March 2016
S6 2016-17	Annual NASA Convention 2017 in Poornima University, Jaipur from 16 th -20 th Jan 2017

	Shortlisted for Landscape trophy ISOLA - among top 18 Shortlisted for LIK trophy- among top 11 Shortlisted for UCP trophy- among top 10 Citation for fashion trophy Shortlisted for dance trophy- among top 8
S6 2016-17	Reubens Trophy - shortlisted in ZONASA -2016 hosted in SRM University, Chennai SIDC Trophy work - shortlisted in ZONASA -2016 hosted in SRM University, Chennai Haritha N won first prize in poster Competition in ZONASA 2016
S6 2016-17	First prize in Program ‘Alankara – 2017’ conducted in NUALS, Kochi.
Haritha N and her rock band team	Second prize in Nakshtra 2K16 conducted in Saint GITTS, Kottayam.
Haritha N	First runner up in Kerala University intercollegiate chess championship. She came 4th in South Zone and participated in the All India Chess Tournament organized by VelTech University Chennai.

24. List of eminent academicians and scientists/ visitors to the department

Name, Designation	Event
Prof. Ramalingam, Professor.	Interactive session with students on Urban Design
Prof. Manoj Kini, Associate professor, Department of Architecture, CET, Thiruvananthapuram	Interactive session with students on Urban Mobility
Ar. Sajan, Consultant Architect, COSTFORD	Interactive session with students on Sustainable Architecture
Ar. Shine Alex Mani, Director, Tulaa, Cochin	Interactive session with students on Urban Design

25. Seminars/ Conferences/ Workshops organized & the source of funding a) National b) International:

Workshop on Heritage Conservation by Dr. Uli Eltgen from 22-23rd Sep 2016 , funded by CGPU, TKMCE and Department of Architecture

26. Student profile programme/ course wise:

Admission to the course is based on rank list published by Commissioner of Entrance Examinations, Government of Kerala. The rank list is prepared based on marks of qualifying examination and score of NATA examination.

Course/programme	Academic year	Sanctioned intake	Enrolled	
			*M	*F
B.Arch	2016-17	80	33	47
	2015-16	80	36	44
	2014-15	80	42	54
	2013-14	80	42	34
	2012-13	40	9	33
	2011-12	40	14	26

*M=Male *F=Female

Student pass percentage

B.Arch (Batch)	Pass percentage
2011-2016	82
2010-2015	91.1
2009-2014	65
2008-2013	56.75
2007-2012	74.65

27. Diversity of Students

Course	Year	Percentage of students from the same state	Percentage of students from other states	Percentage of students from abroad
B.Arch	2016	97.5%	2.5%	Nil
	2015	97.8%	2.2%	Nil
	2014	98%	2%	Nil
	2013	98.7%	1.3%	Nil
	2012	100%	Nil	Nil
	2011	97.3 %	2.7%	Nil

28. How many students have cleared national and state competitive examinations such as NET, SLET, GATE, Civil services, Defense services, etc.?

Name of exam	2011-12	2012-13	2013-14	2014-15	2015-16
GATE	8	2	3	5	12

29. Student progression

Student progression	2011-12	2012-13	2013-14	2014-15	2015-16
UG to PG	55%	52%	50%	22%	31%
PG to Ph.D	-	-	-	-	
Ph.Dto Post-Doctoral	-	-	-	-	
Employed–Campus selection	-	-	-	-	
Employed–Other than campus recruitment	28%	29%	35%	75.8	55
Entrepreneurship/Self-employment	17%	19%	15%	2.2%	14

30. Details of Infrastructural facilities

a) Department Library

No	Description	Quantity in numbers	
1	Books for student circulation	Titles	1272
		Volumes	1625
2	Departmental library for reference	Titles	250
		Volumes	250
3	Technical journals	International	National

		7	19
4	Educational CDs	yes	7
5	Documentation sheets	55	

b) Internet facilities for Staff & Students

No	Description	Quantity in numbers
1.	Workstations with internet facilities (in Department)	20
2.	Bandwidth	60 Mbps
3.	Network facilities for all computers	Available
4.	Printers/ Copiers	2
5.	Printers	2
6.	Scanners	2
7.	Web Camera	2
8.	A0 format plotter	1

c) Class rooms with ICT facility

No	Description	Number of rooms
1.	Class room with Black Board ,White Board &ICT facilities	7

d) Laboratories for UG

No	Name of Lab	Students capacity	Area (sqm)
1.	Building Science Lab	20	45.5
2.	Computer Lab	40	91

31.Number of students receiving financial assistance from college, university, government or other agencies

SCHOLARSHIP DETAILS					
Name of the Scholarship	Year				Total
	2011-12	2012-13	2013-14	2014-15	
MCM from Ministry of Minority Affairs, Central Govt.	1	3	7	13	24
TKM-MCM Institute Level Scholarship	2	2	2	5	11
E-grantz from the Government of Kerala SEBC&FC Students	23	14	3	23	60
E-grantz from the Government of Kerala SC/ST/OEC	15	15	18	23	71

32.Details on student enrichment programmes (special lectures/ workshops/ seminar) with external experts

Year	Module Description	Any other contributory Inst./Industry	Developed /Organized by	Duration	Resource Person	Target Audience
2015-16	SSA Inauguration and Presentation of Design Projects		Department of Arch	15-02-2016	Ar. Jose. K. Mathew	B.Arch students
	Design Projects		Department of Arch	16-02-2016	ArVinod Kumar	B.Arch students
	Stress Management		Department of Arch	08-03-2016	Mr Khan	S1S2 students
	Landscape Architecture		Department of Arch	09-03-2016	Aathira Ajith	Faculty and B.Arch students
	Sustainable Plantation		Department of Arch	09-03-2016	Mr. Subramanian	Faculty and B.Arch students
	Landscape (Site Planning)		Department of Arch	10-03-2016	MsVineetha	Faculty and B.Arch students
	Ecology – Landscape Planning		Department of Arch	11-03-2016	Biley Menon	Faculty and B.Arch students
	Curating Urbanscape		Department of Arch	14-03-2016	Sandeep Menon	Faculty and B.Arch students
	Design - Centre for Harmonious Living		Department of Arch	20-07-2016	Prof. Haritha C.	Faculty and B.Arch students
	NIASA Thesis Awards for Excellence 2016 – Exhibition and Jury		NIASA (COA) and Department of Arch	30, 31 August and 1 st September 2016	NIASA	Faculty and B.Arch students
	Best Thesis Jury		NIASA (COA)	01-09-2016	Neeraj Saunik,	

	Presentation		and Departme nt of Arch			
	Training Programme on EBSCO (Art & Architecture complete)		Central Library	31-07- 2016	Mr. Nanda Lal	S9 students
2014 -15	Design Evolution Methods – Contextual Architecture	SSA TKMCE-- 2014	Departme nt of Arch.	20- 09.2014	Ar. Jose. K. Mathew	B. Arch students
	Vector works CAD Software	SSA TKMCE- 2014	Departme nt of Arch.	26.09.201 4	Vishaghamu rthy, Datalogic, Chennai	B. Arch students
	Architectural Photography	SSA TKMCE- 2014	Departme nt of Arch.	22.01.201 5	Ar. Prashanth Mohan	B. Arch students
2013 -14	Talk on “Urban mobility”		Prof. Deepa Departme nt of Arch.	11.10.201 3	Ar. Manoj Kumar Kini	Fourth Year B Arch students
2012 -13	Architectural Design- Process and Design		Departme nt of Arch.	09.12.201 2	Ar, BrijeshShaij al	B. Arch students
	REVIT Architecture 2012	INTERCAD	SSA TKMCE	12.12.201 2	Renjith Krishnan. B. G	B. Arch students
	Residential Architecture		Departme nt of Arch.	23.01.201 2	Ar. Jose K Mathew	Second Year B Arch students
	Works and Achievement s of the Architect		SSA and CONJUR A, TKMCE	23.02.201 2	Prof. Eugene N Pandala	B. Arch students
	Basic Digital Photography		Departme nt of Arch.	19.05.201 2	Ar. Prasanth Mohan	B. Arch students
	Talk on “Plumbing”		Prof.Subh ashVarma, Departme nt of Arch.	12.01.201 3	Sri. Sreeganesh	Third Year B Arch students

2011 -12	Landscape Architecture		Department of Arch.	23.11.2011	Ar. T. M. Cyriac	B.Arch students
	Design and Practice		Department of Arch.	09.12.2011	Ar. Brijesh	B.Arch students
	Role of Architects in Building Construction		Department of Arch.	16.08.2010	Ar. Praveen Chandra	S3 and S5 B.Arch students
	Architecture - Methods, Tools and Attitudes	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Prof. Reiner Zettl	Students from Architectural Institutions from South India
	Inspiring from Past, Aspiring from Future	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Prof. YatinPandya	Students from Architectural Institutions from South India
2010 -11	Retrospection on drawings	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Prof. Harimohan Pillai	Students from Architectural Institutions from South India
	Retro Influence in Fashion and upcoming trends	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Prof. Febin V Raj	Students from Architectural Institutions from South India
	A New Definition of Architecture in Retrospection	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Ar. Hari Sreenivas	Students from Architectural Institutions from South India
	Video Conferencing on Architecture	SSA TKMCE-ZONASA-2010	Department of Arch	16.10.2010	Prof. Martin Sabota	Students from Architectural Institutions from South India
	Workshop on Design	SSA TKMCE-	Department of Arch	17.10.2010	Prof. Dominik	Students from

	Process	ZONASA-2010			Starzlec	Architectural Institutions from South India
	Cinematography- Styles over Decades	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Mr. Santhosh Thundiyl	Students from Architectural Institutions from South India
	Photography and Conservation	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Mr. Balan Madhavan	Students from Architectural Institutions from South India
	Workshop on Mural Art	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Suresh Muthukulam	Students from Architectural Institutions from South India
	Graphic Design	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Mr. Najeeb Muhammed	Students from Architectural Institutions from South India
	Evolution of Colours	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Mr. FrancesaValan	Students from Architectural Institutions from South India
	Hyper body Architecture	SSA TKMCE-ZONASA-2010	Department of Arch	17.10.2010	Mr. NimishBloria	Students from Architectural Institutions from South India
	Vasthushasthra		SSA TKMCE	31.03.2011	Mr. A. B. Sivan	B.Arch students

33. Teaching methods adopted to improve student learning.

Various pedagogical techniques are adopted to improve student learning as mentioned below:

- Traditional board and chalk method: typically for courses which are analytical, have mathematical derivations and conceptual deduction of equations.
- Use of multimedia in delivery of lectures for other subjects

- Organizing expert lectures and discussions with them
- Organizing study tour, case study, documentation camp, building material surveys and site visits
- Continuous assessment and evaluation of student's performance through individual as well as group presentations
- Interactive teaching modes such as group discussions and brain-storming sessions.

The following are the various content delivery methods used to deliver the courses:

- Lecture interspersed with discussions
- Tutorial
- Laboratories
- Presentations/Seminars/ Design project reviews
- Assignment
- Workshops by eminent personalities in the Profession
- Construction site Visits/ Hands on experience
- Practical Training under Registered Architect/Firm
- Documentation camps
- Peer Learning
- Learning Resources sharing
- Uploading the class notes and presentations in 'Eazy campus, the online academic monitoring system of the institution

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

The college has the following social welfare activities:

- National Service Scheme
- Blood donation camp and stem cell detection camps
- STEPS initiative
- Entrepreneurship cell
- National Association of Students of Architecture (NASA)

Students of our department are active participants and faculty members help to coordinate these activities.

35. SWOC analysis of the department and Futureplans

Strengths

- The students are guided by experienced faculty who are also involved in research.
- The department is able to retain experienced faculty.
- The department facilitates students with visiting faculty and experts from profession to supplement classes.
- Periodical field visits, case studies, documentation camps etc are conducted for the students.
- The students have access to a good library and internet.
- Faculty of the department encourages students for higher studies in India and abroad.
- A good percentage of students are emerging as entrepreneurs at very early stage of their career.

Weaknesses

- More faculty to be encouraged for higher studies and research.
- More technical paper publications are required.
- More consultancy projects are to be undertaken.

Opportunities

- Practical training for students of seventh semester in established architecture firms.
- Availability of State Government funds for research projects.
- Scope for involving in consultancy projects.

Challenges

- Instilling self confidence in students.
- Instilling professional ethics in students.
- Improving communication skills of students.

Future Plans

- 100% faculty with Doctoral degrees by 2020.
- Publications by all faculty by 2016.
- To start PG courses by 2017.

**DEPARTMENT OF MASTER OF COMPUTER APPLICATION
EVALUATIVE REPORT**

1. Name of the department :Master of Computer Applications

2. Year of Establishment :1986

3. Names of the Programmes/Courses offered:Master of Computer Applications (MCA) Na

4. Names of interdisciplinary courses and the departments/units/subjects involved:
2011 Scheme

No	Course	Semester	Department involved
1	Combinatorics And Graph Theory	I	Mathematics
2	Probability And Statistics	I	Mathematics
3	Digital Systems	I	Electronics & Communication Engineering
4	Computer Organization	II	Electronics & Communication Engineering
6	Microprocessor Laboratory	II	Electronics & Communication Engineering
7	Principles Of Management	II	Mechanical Engineering
8	Numerical Analysis & Optimization Techniques	III	Mathematics

2015 Scheme

No	Course	Semester	Department involved
1	Probability And Statistics	I	Mathematics
2	Digital Systems	I	Electronics & Communication Engineering
3	Microprocessor Laboratory	I	Electronics & Communication Engineering
4	Microprocessor & Interfacing	I	Electronics & Communication Engineering
5	Computer Organization	II	Electronics & Communication Engineering
6	Combinatorics and Graph Theory	III	Mathematics
7	Numerical Analysis & Optimization Techniques	IV	Mathematics

2016 Scheme

No	Course	Semester	Department involved
1	Discrete Mathematics	I	Mathematics
2	Applied Probability & Statistics	I	Mathematics
3	Applied Statistics Lab	I	Mathematics
4	Principles of Management	I	Mechanical Engineering
5	Digital Fundamentals	I	Electronics & Communication Engineering
6	Operations Research	II	Mathematics
7	Computer Organization and Architecture	II	Electronics & Communication Engineering

5. **Annual/Semester/Choice based Credit System:**Semester Based System

6. **Participation of the department in the courses offered by other departments:**Nil

7. **Courses in collaboration with other Universities, Industries,foreign institutions,etc.:**Nil

8. **Details of courses/Programmes discontinued (if any) with reasons:**Nil

9. **Number of teaching post**

Designation	Sanctioned	Filled
Professors	1	1
AssociateProfessors	2	2
Assistant Professors	3	3

10. **FacultyProfilewithname,qualification,designation,specialization(D.Sc/D.Lit/Ph.d/ M.Phil. etc)**

Name	Qualification	Designation	Specialization	Years of Experience
Dr.NaderaBeevi S.	M.E, PhD	Professor	Computer Science and Engineering	17
Prof.Vaheetha Salam	M.E	Associate Professor	Applied Electronics	22
Prof. NatheeraBeevi M.	MCA	Assistant Professor	Computer Applications	17

Prof.Fousia M.Shamsudeen	MCA, MTech	Assistant Professor	Computer Science and Information Technology	3
Prof. Sheera Shamsu	MTech	Assistant Professor	Computer Science and Engineering	6 Months

11. List of senior visiting faculty:Nil

12. Percentage of lectures delivered and practical classes handled by temporary faculty:

Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
No of temporary faculty	1	1	2	1	2	2
Percentage	16.6%	16.6%	33%	16.6%	33%	33%

13. Student –Teacher Ratio

Sl. No	Academic year	Santioned intake	Student Strength				Faculty Strength	Student-Teacher ratio
			I yr	II yr	III yr	Total		
1	2011-12	30	30	25	28	83	6	13.8
2	2012-13	30	29	29	25	83	6	13.8
3	2013-14	30	28	29	29	86	6	14.3
4	2014-15	30	29	28	29	86	6	14.3
5	2015-16	30	25	26	28	79	6	13.1
6	2016-17	40	36	25	26	87	7	12.4

14. Number of academic support staff (Technical) and administrative staff sanctioned and filled

Description	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	S	F	S	F	S	F	S	F	S	F	S	F
Computer programmer	2	2	2	2	2	2	2	2	2	2	2	2
Tradesman	1	1	1	1	1	1	1	1	1	1	1	1

15. Qualification of teaching faculty with DSc/D.litt/Ph.D/MPhil/PG:

Qualification	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
PG	6	6	6	6	5	6
PhD					1	1

16. Number of faculty with ongoing projects from National/International funding agencies and grants received: Nil

17. Departmental projects funded by DST-FIST; UGC, DBT, ICSSR, etc. and total grants received: Nil

18. Research center/facility recognized by the university: Nil

19. Publications:

(Details given in Annexure)

No	Name of the faculty	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		Total
		N*	I*	N	I	N	I	N	I	N	I	N	I	
1	Dr.NaderaBeevi S.		2		3		1							6
2	Prof.Vaheetha Salam											1		1
3	Prof.Natheera Beevi M	1		1						1	1	1		5
4	Saleema A							1		1				2
5	Prof.Fousia M Shamsudeen					2						1	2	5

*N=National, I=International

20. Areas of consultancy and income generated: Nil

21.Faculty as members in

a) National committees b) International committees c) Editorial Boards

No	Name of Faculty	Membership in Professional Bodies	
		National	International
1	Dr. NaderaBeevi S.	ISTE	ACM
2	Prof. Vaheetha Salam	ISTE	
3	Prof. NatheeraBeevi M.	ISTE	
4	Prof. Fousia M. Shamsudeen	ISTE	
5	Prof.Sheera Shamsu	ISTE	

22. Student Projects

a) Percentage of students who have done in-house projects including inter departmental /programme

b) Percentage of students placed for projects in organizations outside the institution i.e.in Research laboratories/Industry/other agencies

Course	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17	
	I*	O*	I	O	I	O	I	O	I	O	I	O
MCA		100%		100%		100%		100%		100%		100%

*I – In-house, O – Outside Institution

23. Awards/Recognitions received by faculty and students

Description	Awards/ Recognition	2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		Total
		A*	R*	A	R	A	R	A	R	A	R	A	R	
Faculty	Curricular									1				1
	Co-curricular													
Student	Curricular	1		2	2	2	2		1		2	4		16
	Co-curricular										4		7	11

* A-Award R- Recognitions

24. List of eminent academicians and scientists/visitors to the department

Year	Date	Visitors, Name and Address/Position
2011-12	19-08-2011	Mr. Chandra Boss J, Asst. Director, MTS, Chennai
2012-13	11-08-2012	Mr. Biju. T. Abraham, Visa, and Incorporates, USA
2013-14	1-11-2013	Mr. Santhosh C Kurup , Delivery Centre Head, TCS Kochi
	3-11-2013	Ms. Saleena S, Principal of Technical Office, CDAC, Thiruvananthapuram
	5-11-2013	Dr. Vinod Chandra S S , Director, Computer Centre, University of Kerala
2014-15	23-09-2014	Mr. Satish Babu, Director of ICFOSS, Thiruvananthapuram
	17-01-2015	Mr. Rajesh Kumar, Senior Manager, SATMETRICS Systems, Bangalore
	10-02-2015, 10-02-2015	Mr. Radhakrishnan , Assistant Prof., IITMK, Thiruvananthapuram
	17-08-2015	Mr. Jayaprakash, Associate Consultant, TCS, Malaysia
	06-11-2015	Mr. Jayaprakash, Associate Consultant, TCS, Malaysia

	18-12-2015	Mr. Albin Thomas, Senior Information Security Consultant, ISYX Technologies, UAE
2015-16	04-1-2016	Prof. Vijaya Govindan NSS College, Ottapaalam. Prof. Binu V.P of College of Engineering, Karunagapally. Prof. Frahad Muzadeeq, Adjunct Professor, Department of Computer Science, College of Engineering, Trivandrum.
	05-1-2016	Dr. Beena Mathew. K, Associate Professor of Cochin University College of Engineering, Kuttanad.
	06-1-2016	Mr. Bhadran. Associate director CDAC, Trivandrum Mr. SatheeshKumar Technical Officer CDAC, Trivandrum
	07-1-2016	Dr. Sudeep K.S, Assistant professor NIT Calicut
	08-1-2016	Mr. Suresh Sankar, Information Security Manager TCS Kochi
	08-1-2016	Mr. Christy Jacob, lead architect of TCS Digital Enterprise
	9-1-2016	Dr. Sangeetha Jose, Assistant professor, Government College of Engineering, Idukki,
	20-1-2016	Dr. Renu, Asst Prof, CUSAT
	18-2-2016	Dr. Sabu M R, Associate professor, MES college, Marampally, Aluva, M.C.Rajilan , Chairman
	17-3-2016	RACE Institute Kollam

	18-3-2016	Dr Anzar S M, Associate Professor from MES College Of Engineering Kuttipuram,malappuram
	12-4-2016	Hiron Bose Technical Engineer, CDAC Trivandrum
2016-17	18-05-2016	Dr. K. Satheesh Kumar, Dept of Futures Studies, University of Kerala, Kariavattom
	19-05-2016	Dr. Prince A, RIT Kottayam Dr. HARI V.S, Principal in-charge, College Of Engineering, Karunagappally
	20-05-2016	Mr. BarathiGanesan HB, Digital Enterprise Unit, TCS Kochi
	21-05-2016	Dr. Vinod Chandra S S, Director, Computer Centre University of Kerala Dr. Sumitra S, Dept of Mathematics, Indian Institute of Space Science and Technology (Dept. of Space, Govt. of India) Thiruvananthapuram
	23-05-2016	Dr. Sishaj P Simon, NIT, Tiruchirappalli
	29/9/2016	Dr.Kumaravel S , NIT Calicut Dr. K. Satheesh Kumar, Associate Professor University of Kerala, Karyavattom Campus,Trivandrum
	10/12/2016	UnniKrishnan G,Director,Software development,Oracle India Pvt Ltd,Technopark, Thiruvanathapuram
	24/04/2017	Ms. Seema Sushama ,Tata Consultancy Services,Kochi
	29/06/2017	Mr. Stephen and Mr. Ashutosh Raj, EngineersTata Consultancy ILP Innovations,TCS Kochi
	30/06/2017	Mr. Rajeev,Senior Engineer,Tata Consultancy Solutions,Kochi

25. Seminars/conferences/workshops organized&the source of funding

a)National b)International :

Title	Funding Agency	Organized By	Date
Mathematical Challenges in Cyber Security	TEQIP II	Dr.Nadera Beevi.S, Dr.Geetha.K	Jan 2016
Contemporary Developments in Optimization Techniques and its Applications	TEQIP II	Prof.Vaheetha Salam Dr.Sheeba R	May2016

26. Student Profile Programme/course wise:

Year of Pass	Applications received	Selected	Enrolled		Pass percentage
			*M	*F	
2011-12	Allotted from common rank list prepared from MCA Entrance Examination, conducted by Government of Kerala	28	12	16	75
2012-13		28	8	20	85.71
2013-14		25	11	14	80
2014-15		29	10	19	86.20
2015-16		29	10	19	75.86
2016-17		28	10	18	71.4

*M –Male, F-Female

27. Diversity of students Allotted from common rank list prepared from MCA Entrance Examination, conducted by Government of Kerala

Course	Percentage of students from the same state	Percentage of students from other states	Percentage of students from abroad
MCA	100	-	-

28.How many students have cleared national and state competitive examinations such as NET,SLET,GATE,Civil services,Defense services,etc?

Year	NET
2013-14	1
2015-16	1

29. Student progression

Student progression	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
UG to PG						
PG to M.Phil	1					
PG to Ph.D						
Ph.D to Post-Doctoral						
Employed by campus selection	16(28) 57.14%	17(28) 60.71%	13(25) 52%	10(29) 34.48%	10(29) 34.48%	9(28) 32.14%
Employed by other than campus recruitment	5(28) 17.8%	5(28) 17.8%	7(25) 28%	10(29) 34.48%	5(29) 34.48%	9(28) 32.14%

Entrepreneurship/self-employment	2(28) 7.14%	2(28) 7.14%	1(25) 4%			
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30. Details of Infrastructural facilities\

a) Department library

No	Descriptions	Quantity in Numbers	
1	Books for student circulation	Titles	562
		Volumes	248

b) Internet facilities for Staff & Students

No	Descriptions	Quantity in Numbers
1	Computers with internet, network facility	51
2	Bandwidth	50 Mbps leased line and 10 Mbps Broad Band connection from BSNL
3	Printers	3
4	Multifunctional printers	2
5	Projector	2

c) Class room with ICT facility

No	Description	No of Rooms
1	Class room with white board, projectors, internet facility and ICT	3

d) Laboratories

No	Name of the laboratory	Students capacity/batch	Area (sq m)
1	Computer lab	40	86

31. Number of students receiving financial assistance from college ,University, government or other agencies

Name of the Scholarship	No of students received Scholarships						Total
	Year						
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
MCM from Ministry of Minority Affairs, Central Govt.	2	0	1	1	0	0	4
TKM-MCM, Institute Level Scholarship	3	3	3	6	0	0	15
Egrantz from the Govt of Kerala, SEBC & FC Students	37	39	0	71	42	26	215
Egrantz from the Govt of Kerala SC/ST/OEC students	2	5	3	2	9	11	32

CSS, Central Sector Scholarship,(Central Government),General Student Scholarship	0	3	3	0	0	0	6
CHMKS(C H MuhammedKoya Scholarship)	1	1	1	0	0	0	3

32.Detailson student enrichment programmes (speciallectures/workshops/seminar) with external experts

Academic Year	Special Lectures/workshops/seminar	Title	External Experts
2011-2012	Lecture	Mobile Technology	Mr. Chandra Boss J., Asst. Director, MTS, Chennai
2012-2013	Lecture	Agile Technology	Mr. Biju T. Abraham, Director of Engineering, Visa Inc, California
2012-2013	Lecture	Digital Trends and its Applicability to Industries	Mr. Santhosh C. Kurup, Delivery Centre Head, TCS Kochi
		Free Open Software	Ms. Saleena S., Principal of Technical Office, CDAC, Tvm
		Bio Inspired Computing	Director, Computer Centre, University of Kerala
2013-2014	Workshop	Internet of Things	Mr. Satish Babu, Director of ICFOSS, Thiruvananthapuram
2014-2015	Lecture	Entrepreneurship Development	Mr. Rajesh Kumar, Sr. Manager, SATMETRICS Systems, Bengaluru
	Workshop	Spatial Database and its Applications	Mr. Radhakrishnan, Assistant Professor, IITMK, Tvm
	Lecture	Cloud Security in Android Applications	Mr. Jaya Prakash Pillai, Associate Consultant, TCS, Malaysia
	Lecture	Advanced Computer Graphics using Open GL	Dr. Sreeni K. G., Assistant Professor, College of Engineering, Thiruvananthapuram.
	Lecture	Ethical Hacking and Cyber Security	Mr. Albin Thomas, Senior Information Security Consultant, ISYX Technologies, UAE

2015-16	Workshop	Software Engineering Tools	Dr. Renu, Asst Prof, CUSAT
	Workshop	Data Mining using WEKA tool	Dr. Sabu M R, Associate professor, MES college, Marampally, Aluva,
	Workshop	New Trends in Biometric Application-Issues and Possibilities	Dr Anzar S M, Associate Professor from MES College Of Engineering Kuttipuram, malappuram
	Seminar	Linux Administration	Hiron Bose Technical Engineer, CDAC Trivandrum
	Lecture	Climb the ladder of success	M.C.Rajilan , Chairman RACE Institute Kollam
2016-17	Workshop	R programming	Dr. K. Satheesh Kumar, Associate Professor University of Kerala, Karyavattom Campus Trivandrum
	Lecture	Big Data Analytics	UnniKrishnan G, Director, Software development, Oracle India Pvt Ltd, Technopark, Thiruvananthapuram.
	Lecture	Spring and collections	Ms. Seema Sushama , Tata Consultancy Services, Kochi
	Workshop	Computer Vision and Open CV Programming	Mr. Stephen and Mr. Ashutosh Raj, EngineersTata Consultancy ILP Innovations, TCS Kochi
	Workshop	Data Mining And Warehousing	Mr. Rajeev, Senior Engineer, Tata Consultancy Solutions, Kochi

33. Teaching methods adopted to improve student learning

Aiming at effectiveness of the teaching learning process, the department facilitates the use of various teaching tools such as:

- Traditional board and chalk method is used for theoretical and analytical courses having mathematical derivations.
- Adequate usage of LCD projectors, Web based teaching aids etc. to enhance learning of the students.
- Periodic industrial visits/case study to help the students to enhance their knowledge with practical experience.
- Expert lectures by eminent personalities to update the knowledge of students on relevant topics.
- Workshops are organized to provide hands on training for students.
- Encourages group study for slow learners.
- Provides remedial classes for weak students.

34. Participation in Institutional Social Responsibility (ISE) and Extension activities.

The college has the following social welfare activities:

- Participation in NSS camps, Blood & Stem Cell Donation Camp
- Our Alumni actively participate in various programmes in our department
- Students are active members of Entrepreneurship Development Cell

35. SWOC analysis of the department and future plans

Strengths

- Experienced and dedicated faculty members in different specialization.
- Excellent mentoring system to help students in their curricular and co curricular activities
- Alumni occupy distinguished position in reputed companies and having strong interaction with department.
- Students regularly bag University ranks.
- Adequate infrastructural facilities
- All class rooms and labs are equipped with ICT facilities.
- Spacious library with adequate books.
- Department promotes research by encouraging the students to take up research oriented projects.
- Encourages faculty to participate and publish their work in conferences and reputed journals.

Weaknesses

- Students need to be inclined towards higher studies and research.
- Publications, Patents and IPRs by faculty need to be improved.
- Funded projects need to be improved.

Opportunities

- Opportunity to undertake real time/research projects.
- Student placements in reputed companies.
- More opportunities to train and evolve as entrepreneurs.
- Faculty and staff have the right set of opportunities to update modern skills and knowledge through FDPs & workshops
- Collaboration with industries and professional bodies to provide training classes and hands-on-training in the areas computer applications.

- Opportunity to acquire higher qualification.

Challenges

- Communication skills of students have to be improved to increase their employability.
- Achieving a pass percentage of 100 %
- Incline students to pursue higher education and research.

Future Plans

- Enhance the linkage between other institutes and industries (MoU).
- Improving research activities of students and faculty through funded projects.
- Aiming to obtain Ph. D Degree for almost all faculty members within five years.

ANNEXURES

ANNEXURE A

Thangal Kunju Musaliar College of Engineering

Kollam - 691005, Kerala.



Phone : 0474 - 2712022, 2712024, 2713129, 2713126, Fax : 0474 - 2712023

E- mail : principal@tkmce.ac.in, website : www.tkmce.ac.in

DECLARATION BY THE HEAD OF THE INSTITUTION

I certify that the data included in the Self-study Report (SSR) are true to the best of my knowledge.

This SSR is prepared by the institution after internal discussions, and no part thereof has been outsourced.

I am aware that the Peer team will validate the information provided in this SSR during the peer team visit.

Kollam,
02/08/2017.

Dr. S. Ayoob
PRINCIPAL

ANNEXURE B

Thangal Kunju Musaliar College of Engineering

Kollam - 691005, Kerala.



Phone : 0474 - 2712022, 2712024, 2713129, 2713126, Fax : 0474 - 2712023

E- mail : principal@tkmce.ac.in, website : www.tkmce.ac.in

CERTIFICATE OF COMPLIANCE

(Affiliated/Constituent/Autonomous Colleges and Recognized Institutions)

This is to certify that **THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING** fulfils all norms.

1. Stipulated by the affiliating University and/or
2. Regulatory Council/Body [such as UGC, NCTE, AICTE, MCI, DCI, BCI etc.] and
3. The affiliation and recognition [if applicable] is valid as on date.

In case the affiliation/recognition is conditional, then a detailed enclosure with regard to compliance of conditions by the institution will be sent.

It is noted that NAAC'S accreditation, if granted, shall stand cancelled automatically, once the institution loses its University affiliation or Recognition by the Regulatory Council, as the case may be.

In case the undertaking submitted by the institution is found to be false then the accreditation given by NAAC is liable to be withdrawn. It is also agreeable that the undertaking given to NAAC will be displayed on the College website.

Dr. S. Ayoob
PRINCIPAL

Kollam,
02/08/2017.



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg Vasant Kunj, New Delhi-110067

PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

F.No. South-West/1-3352044672/2017/EOA

Date: 10-Apr-2017

To,

The Principal Secretary,
Deptt. Of education, Govt. of Kerala,
Govt. Sectt. Annexe,
Thiruvananthapuram-695001

Sub: Extension of approval for the academic year 2017-18

Ref: Application of the Institution for Extension of approval for the academic year 2017-18

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2016 notified by the Council vide notification number F.No.AB/AICTE/REG/2016 dated 30/11/2016 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Permanent Id	1-4914383	Application Id	1-3352044672
Name of the Institute	TKM COLLEGE OF ENGINEERING	Institute Address	TKM COLLEGE OF ENGINEERING KARICODE KILIKOLLOOR KOLLAM- 691005 KERALA, KOLLAM, KOLLAM, Kerala, 691005
Name of the Society/Trust	TKM COLLEGE TRUST	Society/Trust Address	MUSALIAR NAGAR 2ND MILESTONE KILIKOLLOOR, KOLLAM, KOLLAM, Kerala, 691004
Institute Type	Govt aided	Region	South-West

Opted for change from Women to Co-ed and Vice versa	No	Opted for change of name	No	Opted for change of site	No
Change from Women to Co-ed approved and Vice versa	Not Applicable	Change of name Approved	Not Applicable	Change of site Approved	Not Applicable
Opted for Conversion from degree to diploma	No	Opted for Conversion from diploma to degree	No	Conversion (degree to diploma or vice-versa) Approved	Not Applicable

To conduct following courses with the intake indicated below for the academic year 2017-18

Application Id: 1-3352044672			Course	Full/Part Time	Affiliating Body	Intake Approved for 2016-17	Intake Approved for 2017-18	NRI Approval status	PIO / FN / Gulf quota/ OCI/ Approval status	Foreign Collaboration/Twinning Program Approval status*
Program	Shift	Level								
ARCHITECTURE	1st Shift	POST GRA	URBAN PLANNING	FULL TIME	APJ Abdul Kalam Technological	18	18	NA	NA	NA



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PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

		DUA TE			University, Kerala					
ARCHITECT URE	1st Shift	UND ER GRA DUA TE	ARCHITECTUR E	FULL TIME	APJ Abdul Kalam Technological University, Kerala	80	80	NA	Yes	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	COMMUNICATI ON SYSTEMS	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	Yes	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	COMPUTER INTEGRATED MANUFACTURI NG	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	NA	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	COMPUTER SCIENCE AND ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	Yes	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	INDUSTRIAL INSTRUMENTA TION AND CONTROL	FULL TIME	APJ Abdul Kalam Technological University, Kerala	24	24	NA	NA	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	INDUSTRIAL REFRIGERATI ON AND CRYOGENICS	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	Yes	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	POWER SYSTEMS	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	NA	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	POS T GRA DUA TE	STRUCTURAL ENGINEERING AND CONSTRUCTIO N MANAGEMENT	FULL TIME	APJ Abdul Kalam Technological University, Kerala	18	18	NA	Yes	NA
ENGINEERIN G AND TECHNOLO GY	1st Shift	UND ER GRA DUA TE	CHEMICAL ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	60	60	NA	Yes	NA



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ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	CIVIL ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	120	120	NA	Yes	NA
ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	COMPUTER SCIENCE AND ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	60	60	NA	Yes	NA
ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	ELECTRICAL AND ELECTRONICS ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	120	120	NA	Yes	NA
ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	ELECTRONICS & COMMUNICATION ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	120	120	NA	Yes	NA
ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	MECHANICAL ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	120	120	NA	Yes	NA
ENGINEERING AND TECHNOLOGY	1st Shift	UNDERGRADUATE	PRODUCTION ENGINEERING	FULL TIME	APJ Abdul Kalam Technological University, Kerala	60	60	NA	Yes	NA
MCA	1st Shift	POSTGRADUATE	MASTER OF COMPUTER APPLICATIONS	FULL TIME	APJ Abdul Kalam Technological University, Kerala	60	60	NA	NA	NA

The above mentioned approval is subject to the condition that

TKM COLLEGE OF ENGINEERING

shall follow and adhere to the Regulations, guidelines and directions issued by AICTE from time to time and the undertaking / affidavit given by the institution along with the application submitted by the institution on portal.

Course(s) Applied for Closure by the Institute for the AY 2017-18:

Application Id: 1-3352044672			Name of the Course	Full/Part Time	Affiliating Body	Course Closure Status
Program	Shift	Level				
ENGINEERING AND TECHNOLOGY	1st Shift	POSTGRADUATE	NANO TECHNOLOGY : (Last Approved Intake 0)	FULL TIME	APJ Abdul Kalam Technological University,	Pending ^s



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg Vasant Kunj, New Delhi-110067

PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

OGY					Kerala	
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	STRUCTURAL ENGINEERING : (Last Approved Intake 0)	FULL TIME	APJ Abdul Kalam Technological University, Kerala	Pending [§]

§ due to non submission of NOC's from University / Board and / or State Government

In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Strict compliance of Anti-Ragging Regulation:- Approval is subject to strict compliance of provisions made in AICTE Regulation notified vide F. No. 37-3/Legal/AICTE/2009 dated July 1, 2009 for Prevention and Prohibition of Ragging in Technical Institutions. In case Institution fails to take adequate steps to Prevent Ragging or fails to act in accordance with AICTE Regulation or fails to punish perpetrators or incidents of Ragging, it will be liable to take any action as defined under clause 9(4) of the said Regulation.

Note: Validity of the course details may be verified at www.aicte-india.org

Prof. A.P Mittal
Member Secretary, AICTE

Copy to:

- 1. The Regional Officer,**
All India Council for Technical Education
Health Centre Building
Bangalore University Campus
Bangalore - 560 009, Karnataka
- 2. The Director Of Technical Education**,**
Kerala
- 3. The Registrar**,**
APJ Abdul Kalam Technological University, Kerala
- 4. The Principal / Director,**
TKM COLLEGE OF ENGINEERING
TKM COLLEGE OF ENGINEERING
KARICODE
KILIKOLLOOR
KOLLAM- 691005
KERALA,
KOLLAM,KOLLAM,
Kerala,691005
- 5. The Secretary / Chairman,**
TKM COLLEGE TRUST
MUSALIAR NAGAR
2ND MILESTONE
KILIKOLLOOR,
KOLLAM,KOLLAM,



All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg Vasant Kunj, New Delhi-110067

PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

Kerala,691004

6. Guard File(AICTE)

Note: ** - Approval letter copy will not be communicated through post/email. However, provision is made in the portal for downloading Approval letter through Authorized login credentials allotted to concerned DTE/Registrar.

ANNEXURE D. CERTIFICATE OF RECOGNITION U/S 2(F) AND 12(B) UGC ACT

76)

Ph. 23236351, 23232701, 23237721
23234116, 23235733, 23232317
23236735, 23239437, 23239627

Extension No. 413 (CPP-I Colleges)
UGC Website: www.ugc.ac.in

ज्ञान-विज्ञान विमुक्तये
SPEED POST

विश्वविद्यालय अनुदान आयोग
बहादुरशाह जफर मार्ग
नई दिल्ली-110 002
UNIVERSITY GRANTS COMMISSION
BAHADURSHAH ZAFAR MARG
NEW DELHI-110 002

F. No. 1-1/2004 (CPP-I/C)


May 2012
1st June 2012

The Principal,
Thangal Kunju Musaliar College,
Of Engineering,
Kollem Dist – Kollam,
Kerala – 691 005.

Sub: - Recognition of Thangal Kunju Musaliar College of Engineering, Kollem Dist – Kollam, Kerala – 691 005, under Section 2 (f) & 12 (B) of the UGC Act, 1956.

Sir,

With reference to your letter No P1/1/52/2012 dated 17.05.2012 on the above subject I am directed to say that the name of **Thangal Kunju Musaliar College of Engineering, Koilem Dist – Kollam, Kerala – 691 005**, established in the year of 1958, affiliated to **Kerala University**, is included in the list of Colleges maintained under Section 2 (f) & 12 (B) of the UGC Act, 1956 under the head '**Non-Government** College teaching upto **Bachelor's Degree**'. The College is also eligible to receive Central assistance under Section 12 (B) of the UGC Act.

Yours faithfully,

(Sunita Gulati)
Section Officer

ANNEXURE E. COUNCIL OF ARCHITECTURE APPROVAL



वास्तुविद्युत अधिनियम, 1972 के अंतर्गत भारत सरकार का एक स्वायत्त प्राधिकरण निगम
(An Autonomous Statutory Body of Govt. of India, under the Architects Act, 1972)

EXTENSION OF APPROVAL

Ref: CA/5/Academic-KL02
June 16, 2017

✓ The Principal
School of Architecture
TKM College of Engineering
Thangal Kunju Musaliar, TKMCE(P.O)
KOLLAM-691 005 (Kerala)
Tel. (O): 0474-2712022-25

Sub: Extension of Approval for imparting 5-year Full-time Bachelor of Architecture Degree Course from the academic session 2017-2018 onwards - reg.

Dear Sir,

I am directed to state that the letter/email dated 03.06.2017 and 16.06.2017 sent by your institution were considered by the Council of Architecture, requesting the Council to issue the letter of approval with revised intake in view of excess admissions made by the institution (13 during 2014-2015 and 7 during 2015-2016) by accommodating excess admissions.

Accordingly, the Executive Committee of the Council, after consideration of your request, has decided to accord approval for existing B.Arch. degree course with deduction of seats as under:

DETAILS OF THE COURSE	INTAKE	PERIOD OF APPROVAL
5-year Full-Time Bachelor of Architecture	80-7=73 (7 less excess admissions made during past years)	2017-2018 (Intake to be reduced by 7 & 6 for academic sessions 2018-2019 & 2019-2020 to accommodate excess admissions also)

The approval accorded by the Council to your institution is subject to compliance of the Minimum Standards of Architectural Education prescribed by the Council i.e. Council of Architecture (Minimum Standards of Architectural Education) Regulations, 1983 or as may be prescribed by the Council from time to time. The approval accorded to your institution shall be subject to appointment of adequate Faculty of Architecture and maintenance of Physical and academic infrastructure and facilities at your institution as per Council Norms, prior to commencement of academic session 2017-2018.

The Council shall be at liberty to inspect the Institution at any point of time to assess the Minimum Standards of Architectural Education prescribed by the Council and to ascertain that the institution is imparting architectural course as per the Norms prescribed by the Council, from time to time. In case the institution is found to be imparting deficient education during 2017-2018, the appropriate action shall be initiated against it.


Yours faithfully,

R. K. Oberoi
Registrar

20/6/17

ANNEXURE F. GOVERNMENT ORDER REGARDING MINORITY STATUS

COPY


भारत सरकार
राष्ट्रीय अल्पसंख्यक शैक्षणिक संस्था आयोग
GOVERNMENT OF INDIA
NATIONAL COMMISSION FOR MINORITY EDUCATIONAL INSTITUTIONS

F. NO. 96, 324 & 438 TO 441 OF 2010 *July 2010*

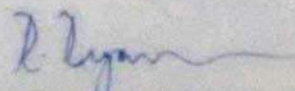
प्रथम तल, जीवन तारा भवन, 5, संसद मार्ग
पटेल चौक, नई दिल्ली - 110001
1st Floor, Jeevan Tara Building, 5, Sansad Marg
Patel Chowk, New Delhi - 110001


ON CONSIDERATION OF THE DOCUMENTARY EVIDENCE
PRODUCED BEFORE THE COMMISSION, THE COMMISSION IS
SATISFIED THAT FOLLOWING INSTITUTIONS NAMELY:-

Sl. No.	File No.	Name of the Institutions
1	F. No. 96 of 2010	TKM Centenary Public School, Karikode, TKM College P.O., Kollam, Kerala.
2	F. No. 324 of 2010	Thangal Kunju Musaliar College of Engineering, Karikode, TKM College P.O., Kollam, Kerala.
3	F. No. 438 of 2010	TKM Institute of Technology, Musliar Hills, Karuvelil P.O., Ezhukone, Kollam, Kerala.
4	F. No. 439 of 2010	TKM Higher Secondary School, Karikode, TKM College P.O., Kollam City, Kerala.
5	F. No. 440 of 2010	TKM College of Arts & Science, Karikode, Kollam, Kerala.
6	F. No. 441 of 2010	TKM Institute of Management, Musliar Hills, Karuvelil P.O., Ezhukone, Kollam, Kerala.

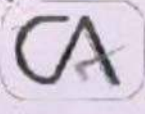
MANAGED BY THE TKM COLLEGE TRUST, ARE MINORITY EDUCATIONAL INSTITUTIONS WITHIN THE MEANING OF SECTION 2(g) OF THE NATIONAL COMMISSION FOR MINORITY EDUCATIONAL INSTITUTIONS ACT 2004. CONSEQUENTLY, IT IS HEREBY DECLARED THAT THE AFORESAID INSTITUTIONS ARE MINORITY EDUCATIONAL INSTITUTIONS COVERED UNDER ARTICLE 30 OF THE CONSTITUTION OF INDIA.

GIVEN UNDER MY HAND AND THE SEAL OF THE COMMISSION
ON THIS 30TH DAY OF JULY, 2010.


(R. RENGANATH)
SECRETARY



ANNEXURE G. AUDITED STATEMENTS OF ACCOUNTS

 *K. Magbool Shah & Co.*
CHARTERED ACCOUNTANTS

73/12 12.03.2012

AUDITOR'S REPORT

We have audited the attached Balance Sheet of Thangal Kunju Musaliar College of Engineering, Kollam - 5 as at 31st March 2011 and the annexed Income and Expenditure Account for the year ended on that date and we report that:-


No depreciation on assets has been charged in the accounts during the year.

Subject to the above remark we report that:-

(i) (a). We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.

(b) In our opinion proper books of account have been kept by the College so far as appears from our examination of such books.

(ii) The Balance Sheet and the Income Expenditure Account prepared and certified by the principal, give a true and fair state of affairs of the College as on 31st March 2011.

 For K. MAGBOOL SHAH & CO.
Chartered Accountants
KOLLAM
P.O. BOX 2377
PIN - 691305

Vazhuvila, Main Road, Punalur - 691305

THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM -5
BALANCE SHEET AS AT 31ST MARCH 2011

LIABILITIES		Rs.	Pcs.	ASSETS		Rs.	Pcs.
Grant - in - Reserves as per Schedule No. I		84935984	50	College Buildings as per Schedule No VIII		1,02,78,810	79
Grant received under Direct central assistance- Schemes under Implementation as per Schedule No. II		1560000	00	Indoor Stadium as per Schedule VIII (A)		36,857	00
TKM College Trust A/Cs as per Schedule No. III		75720515	65	Workshop and Laboratory Equipments as per Schedule No. IX		25,58,793	17
Tuition fee to be remitted to Govt. as per Schedule No. V		221672	50	Machinery, Equipment - Direct Central Assistance schemes as per Schedule X		51,16,640	65
undry creditors as per Schedule No. VI		13,38,042	72	Machinery, Equipments New Courses as per Schedule No XI		64,26,974	17
Receipts and payments A/Cs of MCA as per Schedule No. VII		181	54	Machinery Equipments - as per Schedule No XI (A)		90,22,730	50
Income & Expenditure of Spl. Fee as per Schedule No. XVIII		586886	63	Furniture and Fittings as per Schedule XII		23,81,540	88
				Furniture and Fittings as per Schedule XII (A)		40,800	00
				Office Equipments and others as per Schedule No. XIII		1,21,147	20
				Library, Books as per Schedule XIV		23,44,777	05
				Literary Books as per schedule XIV (A)		9,00,499	75
				Bank bank as per Schedule No XV		27,92,92	62
				Deposits as per Schedule No. XVI		1,59,21	00
				Advances and Debitors as per schedule No XVII		65,5418	68
				Excess of expenditure over income as per schedule No. XIX.		47,64,045	20
				Income and Expenditure of PG Course as per Schedule No XX		27,29,673	44
				Cash and Bank Balance as per Schedule No. XXI		13,07,691	43
TOTAL		176,40,9283	54			176,40,9283	54

09/03/2011
THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM
 Reg. No. 2/10/11



For P. PARASURAM SHAIK & CO.
 Chartered Accountants
 17, Dharma Road,
 Kollam - 686 001
CHARTERED ACCOUNTANTS

THANGAL KUNJUMSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2011

E X P E N D I T U R E		I N C O M E	
Maintenance and Contingencies			
A) Maintenance			
a) Building	847632		
b) Machinery	254279		
B) Contingencies		1001911	90
Electricity Charges	1345367		
Office Expenses	5368		
Postage & Telegram	22243		
Printing and Stationary	35581		
Hospitality	16316		
Travelling Expenses	101831		
Telephone Charges	62725		
Audit Fees	1000		
Legal Charges	74500		
Internet Charges	1261800		
Remuneration to Lecturers (Contract basis)	507440		
Remuneration to Office Asst.	72000		
Security Force	361823		
Remuneration to Library Trainees	37850		
Seminar			
Binding Charges	10000		
Uniform	19655		
Advertisement charges	14084		
Medical Examination (Trust)	283195		
Paper presentation	10500		
College beautification	54730		
Insurance	3994		
Washing Allowance	4941		
Domain registration	360		
Library (Trust)	1000		
Processing fee	85948		
Web hosting central space charge	355100 9927		
		By Excess of expenditure over Income	5894189
			90



K. Maqbool Shah & Co.

CHARTERED ACCOUNTANTS

45/13

04.03.2013

AUDITOR'S REPORT

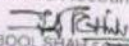
We have audited the attached Balance Sheet of Thangal Kunju Musaliar College of Engineering, Kollam - 5 as at 31st March 2012 and the annexed Income and Expenditure Account for the year ended on that date and we report that:-

No depreciation on assets has been charged in the accounts during the year.

Subject to the above remark we report that:-

- (i) (a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- (b) In our opinion proper books of account have been kept by the College so far as appears from our examination of such books.
- (ii) The Balance Sheet and the Income Expenditure Account prepared and certified by the principal, give a true and fair state of affairs of the College as on 31st March 2012.

For K. Maqbool Shah & Co.
Chartered Accountants


K. MAQBOL SHAH FCA (SABCAA)
M. No. 203742

Vazhavila, Main Road, Punalur - 691305

Phone : 0475 - 2222507(O) 0475 - 2221117 (Tele Fax) 0475 - 2223117(Res) 94470 72507 (Mob)

kmaqboolshah@hotmail.com kmsahandco@yahoo.com

THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2012

EXPENDITURE		INCOME		
Maintenance and Contingencies				Recurring grant
A	Maintenance			
	a) Building	851870	00	
	b) Machinery	218796	00	1070666
B	Contingencies			
	Electricity Charges	1413056	00	
	Office Expenses	6417	00	
	Postage & Telegram	23118	00	
	Printing and Stationary	49770	00	
	Hospitality	12867	00	
	Travelling Expenses	167654	00	
	Telephone Charges	52520	00	
	Audit Fees	33500	00	
	Legal Charges	83000	00	
	Internet Charges	840899	00	
	Remuneration to Lecturers (Contract basis)	1286280	00	
	Remuneration to Office Asst.	85000	00	
	Security force	322170	00	
	Remuneration to Library Trainees	44308	00	
	Binding Charges	43605	00	
	Medical Examination (Trust)	11000	00	
	Paper presentation	20401	00	
	College beautification	7490	00	
	Insurance	5515	00	
	Laundry Charges	200	00	
	Library (Trust)	832072	00	
	Processing fee	360000	00	
	Web hoisting and domain registration	109545	00	
				466709
				00





K. Magbool Shah & Co.

CHARTERED ACCOUNTANTS

151/13

29.06.2013

AUDITOR'S REPORT

We have audited the attached Balance Sheet of Thangal Kunju Musaliar College of Engineering, Kollam - 5 as at 31st March 2013 and the annexed Income and Expenditure Account for the year ended on that date and we report that:-

No depreciation on assets has been charged in the accounts during the year.

Subject to the above remark we report that:-

- (i) (a). We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- (b) In our opinion proper books of account have been kept by the College so far as appears from our examination of such books.
- (ii) The Balance Sheet and the Income Expenditure Account prepared and certified by the principal, give a true and fair state of affairs of the College as on 31st March 2013.



For K. MAQBOOL SHAH & CO.
Chartered Accountants

K. Magbool Shah
K. MAQBOOL SHAH PROPRIETOR (ICA)
PHONE: 0475-2221117
M. No. 203742
FRN : 0006469

Vazhavila, Main Road, Punalur - 691305
Phone : 0475 - 2222507(O) 0475 - 2221117 (Tele Fax) 0475 - 2223117(Res) 94470 72507 (Mob)
kmaqboolshah@hotmail.com kmshahandco@yahoo.com

THANGAL KUNJU NARSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2013

EXPENDITURE	INCOME	
Maintenance and Contingencies	Library(Trust)	
A Maintenance		
a) Building	860388 00	
b) Machinery	167970 00	1028358 00
B Contingencies		
Electricity Charges	1779402 00	
Office Expenses	12730 00	
Postage & Telegram	25181 00	
Printing and Stationary	10922 00	
Hospitality	28685 00	
Travelling Expenses	168502 00	
Telephone Charges	54546 00	
Advertisement Charges	419981 00	
Inspection fee	17020 00	
Legal Charges	66000 00	
Internet	1210223 00	
Remuneration to Lecturers (Contract basis)	850308 00	
Remuneration to Lecturers (Hourly rate)	642813 00	
Remuneration to Graduate Apprentice trainee	171677 00	
Remuneration to Office Asst.	101000 00	
Remuneration to office trainee	17833 00	
Remuneration to system Administrator	78000 00	
Remuneration to System Technician	30000 00	
Remuneration to Technical Apprentice Trainee	100716 00	
Remuneration for communicative English class MCA	4400 00	
Security force	321460 00	
Remuneration to Library Trainees	41419 00	
Binding Charges	12895 00	
Paper presentation	10000 00	
College beautification	7174 00	
		832072 00



Insurance	5618					
TEQIP II	5498					
Syllabus Committee meeting expenses	19621	00				
Laundry Charges	370	00				
Washing allowance	450	00				
Processing fee	25120	00				
Web hoisting and Email space charges	16854	00				
Application fee	1010	00				
Affiliation fee for new course	27300	00				
Microsoft campus license agreement	336150	00	6620878	00	6817164	00
TOTAL			7649236	00	7649236	00
					By Excess of expenditure over income	6817164 00
					TOTAL	7649236 00

For K. MAGBOOL SHAH & CO.
Chartered Accountants



K. Magbool Shah
K. MAGBOOL SHAH & CO. (P)A
PROFESSIONAL ACCOUNTANTS
M. NO. 2037/92
FICWA : 0068465

CHARTERED ACCOUNTANT



[Signature]
PRINCIPAL
Thangal Kunju Musliyar
College of Engineering
Kollam-5, K



K. Maqbool Shah & Co.

CHARTERED ACCOUNTANTS

258/14

11.10.2014

AUDITOR'S REPORT

We have audited the attached Balance Sheet of Thangal Kunju Musaliar College of Engineering, Kollam - 5 as at 31st March 2014 and the annexed Income and Expenditure Account for the year ended on that date and we report that:-

No depreciation on assets has been charged in the accounts during the year.

Subject to the above remark we report that:-

(i) (a). We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.

(b) In our opinion proper books of account have been kept by the College so far as appears from our examination of such books.

(ii) The Balance Sheet and the Income Expenditure Account prepared and certified by the principal, give a true and fair state of affairs of the College as on 31st March 2014.



For K. MAQBOOL SHAH & Co.
Chartered Accountants

K. Maqbool Shah
CA. K. MAQBOOL SHAH FCA (I) ISA (ICA)
M.No. 203742
FRN:0068465

Shah's Enclave, Main Road, Punalur - 691305

Phone : 0475 - 2222507(O) 0475 - 2221117 (Tele Fax) 0475 - 2223117(Res) 94470 72507 (Mob)

kmaqboolshah@hotmail.com ksshahandco@yahoo.com

**THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM -5
BALANCE SHEET AS AT 31ST MARCH 2014**

LIABILITIES	Rs.	Ps.	ASSETS	Rs.	Ps.
Grant - in - Reserves as per Schedule No. I	109980165	68	College Buildings as per Schedule No VIII	10278810	79
Grant received under Direct central assistance- Schemes under Implementation as per Schedule No. II	12552334	00	Indoor Stadium as per Schedule VIII (A)	36857	00
TKM College Trust A/Cs as per Schedule No. III	109078727	65	Workshop and Laboratory Equipments as per Schedule No. IX	33340031	17
Salary payable as per schedule No.IV	129316	00	Machinery Equipment - Direct Central Assistance schemes as per Schedule X	63529991	66
Tuition fee to be remitted to Govt. as per Schedule No. V	217672	50	Machinery Equipments New Courses as per Schedule No XI	6426974	17
Sundry creditors as per Schedule No. VI	12760901	72	Machinery Equipments - as per Schedule No XI (A)	12148589	50
Receipts and payments A/Cs of MCA as per Schedule No. VII	1181	54	Furniture and Fittings as per Schedule XII	3024297	88
Income & Expenditure of Spl. fee as per Schedule No. XVIII	791254	63	Furniture and Fittings as per Schedule XII (A)	40800	00
			Office Equipments and others as per Schedule No. XIII	1492423	20
			Library Books as per Schedule XIV	4044612	05
			Library Books as per Schedule XIV (A)	3904831	75
			Book Bank as per Schedule No XV	3318270	62
			Deposits as per Schedule No. XVI	257227	00
			Advances and Debtors as per Schedule No XVII	3907565	68
			Excess of expenditure over income as per schedule No. XIX.	69487634	20
			Income and Expenditure of PG Course as per Schedule No XX	5629303	44
			Cash and Bank Balance as per Schedule No. XXI	24643333	61
TOTAL	245511553	72	TOTAL	245511553	72


THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING
KOLLAM
PRINCIPAL



For: K. MAQBOOL SHAH & Co.
 Chartered Accountants

CA. K. MAQBOOL SHAH & Co. (ICA)
 13/116, 20/3742
 FRN-0068465
CHARTERED ACCOUNTANT

THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2014

EXPENDITURE	I N C O M E			
Maintenance and Contingencies				Consultancy Receipts
A Maintenance				701149 00
a) Building	868991 00			
b) Machinery	217365 00	1086356 00		
B Contingencies				
Electricity Charges	2156733 00			
Office Expenses	3914 00			
Postage & Telegram	23391 00			
Printing and Stationary	8474 00			
Hospitality	4308 00			
Travelling Expenses	137975 00			
Telephone Charges	71282 00			
Advertisement Charges	234086 00			
Inspection fee	31500 00			
Insurance	5618 00			
Legal Charges	65500 00			
Internet	1908537 00			
Remuneration to Lecturers (Contract basis)	1306157 00			
Remuneration to Graduate Apprentice trainee	110399 00			
Remuneration to Office Asst.	117000 00			
Remuneration to office trainee	15000 00			
Remuneration to System Technician	93300 00			
Remuneration to Technical Apprentice Trainee	27484 00			
Remuneration for communicative English class MCA	6000 00			
Audit Fee	49000 00			
Consultancy Payments	303461 00			
Electrical Inspection fee	29613 00			
Security force	681661 00			
Remuneration to Library Trainees	28670 00			
Binding Charges	12755 00			





K. Maqbool Shah & Co.
CHARTERED ACCOUNTANTS

262/15

23.09.2015

AUDITOR'S REPORT

We have audited the attached Balance Sheet of Thangal Kunju Musaliar College of Engineering, Kollam - 5 as at 31st March 2015 and the annexed Income and Expenditure Account for the year ended on that date and we report that:-

No depreciation on assets has been charged in the accounts during the year.

Subject to the above remark we report that:-

- (i) (a) We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit.
- (b) In our opinion proper books of account have been kept by the College so far as appears from our examination of such books.
- (ii) The Balance Sheet and the Income Expenditure Account prepared and certified by the principal, give a true and fair state of affairs of the College as on 31st March 2015.



For K. MAQBOOL SHAH & Co.
Chartered Accountants

K. Maqbool Shah
CA. K. MAQBOOL SHAH (FCA) (ISA) (ICA)
M. No. 203/12
FRN:006846S

Shah's Enclave, Main Road, Punalur - 691305
Phone : 0475 - 2222507(O) 0475 - 2221117 (Tele Fax) 0475 - 2223117(Res) 94470 72507 (Mob)
kmaqboolshah@hotmail.com kmshahandco@yahoo.com

THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM -5
BALANCE SHEET AS AT 31ST MARCH 2015

LIABILITIES			ASSETS		
	Rs.	Ps.		Rs.	Ps.
Grant - in - Reserves as per Schedule No. I	116751901	21	College Buildings as per Schedule No VIII	10278810	79
Grant received under Direct central assistance- Schemes under Implementation as per Schedule No. II	8267334	00	Indoor Stadium as per Schedule VIII (A)	36857	00
TKM College Trust A/Cs as per Schedule No. III	121446590	65	Workshop and Laboratory Equipments as per Schedule No. IX	34168270	17
Salary payable as per schedule No.IV	407448	00	Machinery Equipment - Direct Central Assistance schemes as per Schedule X	67885723	66
Tuition fee to be remitted to Govt. as per Schedule No. V	217672	50	Machinery Equipments New Courses as per Schedule No XI	6426974	17
Sundry creditors as per Schedule No. VI	14062980	72	Machinery Equipments - as per Schedule No XI (A)	14049552	50
Receipts and payments A/Cs of MCA as per Schedule No. VII	1181	54	Furniture and Fittings as per Schedule XII	3036697	88
Income & Expenditure of Spl. fee as per Schedule No. XVIII	2166649	63	Furniture and Fittings as per Schedule XII (A)	40800	00
			Office Equipments and others as per Schedule No. XIII	1565583	20
			Library Books as per Schedule XIV	4080442	05
			Library Books as per Schedule XIV (A)	3904831	75
			Book Bank as per Schedule No XV	3558270	62
			Deposits as per Schedule No. XVI	258727	00
			Advances and Debtors as per Schedule No XVII	4683580	68
			Excess of expenditure over income as per schedule No. XIX ,	78119515	20
			Income and Expenditure of PG Course as per Schedule No XX	5275703	44
			Cash and Bank Balance as per Schedule No. XXI	25951418	14
TOTAL	263321758	25		TOTAL	263321758

For K. MAQBOOL SHAH & Co
Chartered Accountants

CA. K. MAQBOOL SHAH & Co
M. No. 29/153
FRN. 0065465

CHARTERED ACCOUNTANT

Principal
Thangal Kunju Musaliar
College of Engineering
Kollam -5
PRINCIPAL



THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2015

EXPENDITURE			INCOME		
Maintenance and Contingencies					
A Maintenance			Consultancy Receipts	2876033	00
a) Building	877681	00			
b) Machinery	350247	00	1227928	00	
B Contingencies					
Electricity Charges	2492023	00			
Office Expenses	124209	00			
Postage & Telegram	14216	00			
Printing and Stationary	11779	00			
Hospitality	411	00			
Travelling Expenses	120613	00			
Telephone Charges	121100	00			
Advertisement Charges	305542	00			
Affiliation & Application fee for new course	5290	00			
Application fee	47380	00			
Inspection fee	19130	00			
Processing Fee	275000	00			
Insurance	5618	00			
Legal Charges	37500	00			
Internet Leased Line Services	1179780	00			
Remuneration to Lecturers (Contract basis)	2250107	00			
Remuneration to Lecturers (Hourly rate)	42200	00			
Remuneration to Graduate Apprentice trainee	59613	00			
Remuneration to Office Asst.	124000	00			
Remuneration Special Officer(T)	90000	00			
Remuneration to System Technician	60000	00			
Remuneration to Technical Apprentice Trainee	49152	00			
Remuneration for communicative English class MCA	2000	00			
Remuneration to construction supervisor	100000	00			



Remuneration to Housekeeping agency	120000	00					
Audit Fee	31000	00					
Consultancy Payments	1295580	00					
Electrical Inspection fee	29613	00					
Security force	745032	00					
Remuneration to Library Trainees	33211	00					
Binding Charges	30750	00					
College beautification	355459	00					
Computer Society of India Membership fee	19663	00					
TEQIP II	3200	00					
Uniform	6740	00					
Entrepreneurship Day Celebration	10000	00					
One Day workshop on Nano Technology	13075	00					
Rithu 2014	50000	00	10279986	00	By Excess of expenditure over income	8631881	00
TOTAL			11507914	00	TOTAL	11507914	00

Principal
Thangal Kunju Musahar
College of Engineering
Kollam-5

PRINCIPAL



For K. MAQBOOL SHAI & Co.
Chartered Accountants

CA. K. MAQBOOL SHAI, FCA
M. No. 200012
FRN.0068465

CHARTERED ACCOUNTANT



K. Magbool Shah & Co.

CHARTERED ACCOUNTANTS

567/16

08. 09. 2016

AUDITOR'S REPORT

We have examined the annexed Income and Expenditure Account for the year ending 31st March 2016 and the Balance Sheet as at that date of the **TKM COLLEGE OF ENGINEERING, KOLLAM – 5** and to the report as here under.

We have obtained all the information and explanation which is to best of my knowledge and belief were necessary for the purpose of our audit.

In our opinion and to the best of our information and according to the explanation given to us, the above Balance Sheet and Income & Expenditure-Account give a true and fair view.

- a. In the case of the Balance Sheet, of the state of affairs of the Institute as on 31st March 2016 and
- b. In the case of the Income and Expenditure Account of the excess of the Expenditure over Income of the Institute for the year on that date.

1st Floor, Shah's Enclave, Main Road, Punalur - 691305

Phone : 0475 - 222507(O) 0475 - 2221117 (Tele Fax) 0475 - 2223117(Res) 94470 72507 (Mob)

kmaabooiskah@hotmail.com kshahandco@yahoo.com

THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM - 5
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2016

EXPENDITURE		INCOME			
Maintenance and Contingencies					
A	Maintenance				1065077 00
	a) Building	886458	00		1282625 00
	b) Machinery	90714	00	977172 00	365816 00
B	Contingencies				10000 00
	Electricity Charges	3139809	00		
	Office Expenses	204058	00		
	Postage & Telegram	74107	00		
	Printing and Stationary	71121	10		
	Hospitality	8007	00		
	Travelling Expenses	200558	00		
	Telephone Charges	141121	00		
	Advertisement Charges	675738	00		
	Fee for extension of approval - AICTE	300000	00		
	Fee for NAAC Accreditation	28625	00		
	Fee for NBA Accreditation	1254000	00		
	Accreditation Expenses	104311	00		
	Insurance	5725	00		
	Legal Charges	286500	00		
	Internet	7791	00		
	Internet Leased Line Services	315616	00		
	Microsoft Campus License Agreement	1101797	00		
	Periodicals for Library (Trust)	260101	00		
	Remuneration to Lecturers (Contract basis)	3255735	00		
	Remuneration to Lecturers (Hourly rate)	290200	00		
	Remuneration to Graduate Apprentice trainee	1033	00		
	Remuneration to Office Asst.	165000	00		
	Remuneration Special Officer(T)	195000	00		
	Remuneration to Technical Apprentice Trainee	381117	00		
	Remuneration for communicative	6000	00		

**THANGAL KUNJU MUSALIAR COLLEGE OF ENGINEERING, KOLLAM -5
BALANCE SHEET AS AT 31ST MARCH 2016**

LIABILITIES	Rs.	Ps.	ASSETS	Rs.	Ps.
Grant - in - Reserves as per Schedule No. I	120128132	11	College Buildings as per Schedule No VIII	10278810	79
Grant received under Direct central assistance- Schemes under Implementation as per Schedule No. II	10016959	00	Indoor Stadium as per Schedule VIII (A)	36857	00
TKM College Trust A/Cs as per Schedule No. III	140397915	65	Workshop and Laboratory Equipments as per Schedule No. IX	37986131	17
Salary payable as per schedule No.IV	552602	00	Machinery Equipment - Direct Central Assistance schemes as per Schedule X	68241077	66
Tuition fee to be remitted to Govt. as per Schedule No. V	254347	50	Machinery Equipments New Courses as per Schedule No XI	6426974	17
Sundry creditors as per Schedule No. VI	18893233	72	Machinery Equipments - as per Schedule No XI (A)	19704028	50
Receipts and payments A/Cs of MCA as per Schedule No. VII	1181	54	Furniture and Fittings as per Schedule XII	4093187	88
Income & Expenditure of Spl. fee as per Schedule No. XVIII	2540226	63	Furniture and Fittings as per Schedule XII (A)	40800	00
			Office Equipments and others as per Schedule No. XIII	1627629	20
			Library Books as per Schedule XIV	4452090	05
			Library Books as per Schedule XIV(A)	3904831	75
			Book Bank as per Schedule No XV	3824770	62
			Deposits as per Schedule No. XVI	258727	00
			Advances and Debtors as per Schedule No XVII	2977847	63
			Excess of expenditure over income as per schedule No. XIX ,	90711865	30
			Income and Expenditure of PG Course as per Schedule No XX	5256603	44
			Cash and Bank Balance as per Schedule No. XXI	32962365	99
TOTAL	292784598	15	TOTAL	292784598	10



For K. MAQBUL SUAH & Co.
Chartered Accountants

K. MAQBUL SUAH & Co.
Chartered Accountants
10, The Arcade,
Kollam - 5

For 10036498.

CHARTERED ACCOUNTANT

DD/INC/10/11

